

Building a Better Force: Regular Army / Reserve Components Integration in the Army Chemical Corps

A Monograph

By

LTC James P. Harwell
United States Army



School of Advanced Military Studies
United States Army Command and General Staff College
Fort Leavenworth, Kansas

2016

REPORT DOCUMENTATION PAGE					<i>Form Approved OMB No. 0704-0188</i>	
The public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to the Department of Defense, Executive Service Directorate (0704-0188). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.						
PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ORGANIZATION.						
1. REPORT DATE (DD-MM-YYYY)		2. REPORT TYPE			3. DATES COVERED (From - To)	
4. TITLE AND SUBTITLE Building a Better Force: Regular Army / Reserve Components Integration in the Army Chemical Corps				5a. CONTRACT NUMBER 5b. GRANT NUMBER 5c. PROGRAM ELEMENT NUMBER 5d. PROJECT NUMBER 5e. TASK NUMBER 5f. WORK UNIT NUMBER		
6. AUTHOR(S) LTC James P. Harwell				8. PERFORMING ORGANIZATION REPORT NUMBER		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Army Command and General Staff College ATTN: ATZL-SWD-GD KS 66027-2134				10. SPONSOR/MONITOR'S ACRONYM(S) 11. SPONSOR/MONITOR'S REPORT NUMBER(S)		
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Advanced Military Studies Program				12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for Public Release; Distribution is Unlimited		
13. SUPPLEMENTARY NOTES						
14. ABSTRACT Over the past twenty years, the mission of the Army Chemical Corps has evolved from a focus on protecting military forces against Chemical, Biological, Radiological, and Nuclear (CBRN) weapons to include the elimination Weapons of Mass Destruction (WMD), and CBRN consequence management. At the same time, an increased focus by both adversary state and non-state actors on acquiring WMD has increased the potential for their use. Due to both increasing mission requirements and emerging threats, the Army must seek to implement policies and systems that provide a Chemical Force capable of responding to the full range of CBRN threats and hazards. With more than eighty percent of the Chemical Force residing in the Reserve Components (RCs), it is necessary to integrate the total force to optimize Chemical Force effectiveness. Integration has been challenged by the implementation of statutes and policies that have erected institutional barriers between the Regular Army (RA) and RCs. This paper analyzes potential challenges and identifies opportunities for increasing the responsiveness and effectiveness of the Army Chemical Corps through RA / RCs integration.						
15. SUBJECT TERMS Regular Army, Reserve Component, Total Force, Chemical Corps						
16. SECURITY CLASSIFICATION OF: a. REPORT b. ABSTRACT c. THIS PAGE			17. LIMITATION OF ABSTRACT		18. NUMBER OF PAGES	
19a. NAME OF RESPONSIBLE PERSON			19b. TELEPHONE NUMBER (Include area code)			

Reset

Monograph Approval Page

Name of Candidate: LTC James P. Harwell

Monograph Title: Building a Better Force: Regular Army / Reserve Components Integration in the Army Chemical Corps

Approved by:

_____, Monograph Director
Barry M. Stentiford, PhD

_____, Seminar Leader
Kevin P. Romano, COL, SC

_____, Director, School of Advanced Military Studies
Henry A. Arnold III, COL, IN

Accepted this 26th day of May 2016 by:

_____, Director, Graduate Degree Programs
Robert F. Baumann, PhD

The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the US Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

Fair use determination or copyright permission has been obtained for the inclusion of pictures, maps, graphics, and any other works incorporated into this manuscript. A work of the United States Government is not subject to copyright, however further publication or sale of copyrighted images is not permissible.

Abstract

Building a Better Force: Regular Army / Reserve Components Integration in the Army Chemical Corps, by LTC James P. Harwell, 53 pages.

Over the past twenty years, the mission of the Army Chemical Corps has evolved from a focus on protecting military forces against Chemical, Biological, Radiological, and Nuclear (CBRN) weapons to include the elimination Weapons of Mass Destruction (WMD), and CBRN consequence management. At the same time, an increased focus by both adversary state and non-state actors on acquiring WMD has increased the potential for their use. Due to both increasing mission requirements and emerging threats, the Army must seek to implement policies and systems that provide a Chemical Force capable of responding to the full range of CBRN threats and hazards. With more than eighty percent of the Chemical Force residing in the Reserve Components (RCs), it is necessary to integrate the total force to optimize Chemical Force effectiveness. Integration has been challenged by the implementation of statutes and policies that have erected institutional barriers between the Regular Army (RA) and RCs. This paper analyzes potential challenges and identifies opportunities for increasing the responsiveness and effectiveness of the Army Chemical Corps through RA / RCs integration.

Contents

Abstract	iii
Contents.....	iv
Acknowledgments	v
Acronyms	vi
Figures.....	viii
Introduction	1
The Transformation Discourse: A Capabilities Based Discussion, But is it Enough?	4
The Unholy Trinity: The Contemporary Chemical Force and the Force of Change.....	12
Three Teams, One Fight: Institutional Barriers to Total Force Integration.....	27
Changing the Army's Culture: Moving Toward a Single Force Policy	35
Conclusion.....	47
Bibliography	50

Acknowledgments

Several people played a part in contributing to this work and supporting me along the way. First, from the Command and General Staff College, Dr. Barry Stentiford, who suffered through many drafts, and while he never forced me to change anything, always challenged me intellectually. COL Kevin Romano for going beyond what should be expected of any Seminar Leader. He was always willing to serve as a sounding board and I could always count on him to provide honest feedback, even when it was not what I wanted to hear. Additionally, a big thank you to all the Chemical Officers, especially those I regularly ambushed in the halls of the Command and General Staff College, who took the time to listen to my ramblings and challenge me. There are too many to name but they will never understand the value of short conversations to shaping a seven-month research effort. Lastly and most importantly, my wife, Shannon, and my children, Ephram and Noelle, who supported me along the way, demonstrating remarkable patience as I worked through both this and my other Advanced Military Studies Program responsibilities. Without their love and understanding, this would never have been possible.

Acronyms

ADOS	Active Duty for Operational Support
ADOS-AD	Active Duty for Operational Support – Active Duty Support
ADOS-OC	Active Duty for Operational Support – Overseas Contingency Support
ADOS-RC	Active Duty Operational Support – Reserve Component Support
AGR	Active Guard and Reserve
ANG	Army National Guard
ANGCRRA	Army National Guard Combat Readiness Reform Act
ASPG	Army Strategic Planning Guidance
ATP	Army Techniques Publication
BWC	Biological and Toxin Weapons Convention
C2CRE	Command and Control CBRN Response Elements
CANE	Combined Arms in Nuclear/Chemical Environment
CBRN	Chemical, Biological, Radiological, and Nuclear
CBRNE	Chemical, Biological, Radiological, Nuclear, and Explosives
CCMRF	CBRNE Consequence Management Response Forces
CERF-P	National Guard CBRN Enhanced Response Force Packages
CM	Consequence Management
CRE	CBRN Response Enterprise
CWC	Convention on the Prohibition of the Development, Production, Stockpiling, and Use of Chemical Weapons and on Their Destruction
CWMD	Countering Weapons of Mass Destruction
DCRF	Defense CBRN Response Force
DOTMLPF-P	Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities, and Policy
DSCA	Defense Support of Civil Authorities
DOD	Department of Defense
EOD	Explosive Ordnance Disposal

FORSCOM	Army Forces Command
GFM	Global Force Management
HRF	National Guard Homeland Response Forces
JTD	Joint Table of Distribution
MEB	Maneuver Enhancement Brigades
MTOE	Modified Table of Organization and Equipment
NDAA	National Defense Authorization Act
NG	National Guard
NGB	National Guard Bureau
NPT	Treaty on the Non-Proliferation of Nuclear Weapons
QDR	Quadrennial Defense Review
RA	Regular Army
RCs	Reserve Components
RMD	Resource Management Decision
SRC	Standard Requirements Code
TOE	Table of Organization and Equipment
TRA	Training and Readiness Authority
TRO	Training and Readiness Oversight
TTHS	Trainees, Transients, Holdees, and Student
USAFMSA	United States Army Force Management Support Agency
USAR	US Army Reserve
USARC	US Army Reserve Command
USATEU	US Army Technical Escort Unit
WMD	Weapons of Mass Destruction
WMD-E	Weapons of Mass Destruction Elimination

Figures

1.	Total Army End Strength FY02-FY16	22
2.	Operating Force End Strength, Total Army vs SRC 03, FY02-FY16	23
3.	RA End Strength, Operating Force vs SRC 03, FY02-FY16	24
4.	ANG End Strength, Operating Force vs SRC 03, FY02-FY16	25
5.	Army Reserve End Strength, Operating Force vs SRC 03, FY02-FY16	26
6.	FY17 Chemical Force Distribution	39

Introduction

In an October 2010 ceremony at Fort Hood, TX, CPT Mike Larmore cased the colors of the 46th Chemical Company for the last time, signifying its inactivation from the Regular Army (RA) force structure. The 46th Chemical Company was the last RA smoke company. Its inactivation was part of a broader transformation strategy in which the Reserve Components (RCs) assumed sole responsibility for providing the Army with smoke, heavy decontamination, and biological detection capabilities. Today, these changes detract from the Army Chemical Corps' ability to provide the required capabilities to the joint force commander to execute the maneuver support and Countering Weapons of Mass Destruction (CWMD) missions.

The mission of the US Army Chemical Corps is to provide capabilities to the Army and the joint force to “identify, prevent, and mitigate the entire range of Chemical, Biological, Radiological, and Nuclear (CBRN) threats;” support operational and strategic objectives to counter Weapons of Mass Destruction (WMD) through nonproliferation, counterproliferation, and CBRN consequence management (CM); and enable Army, Joint and Unified Action Partners to operate safely in a CBRN environment.¹ Since the 2003 invasion of Iraq, the mission of the Army Chemical Corps has significantly expanded to counter the full range of WMD threats and hazards. The Chemical Corps, once primarily responsible for CBRN passive defense to ensure the survivability of maneuver forces in a CBRN environment, now provides capabilities that enable the Army and the Joint Force to eliminate adversary WMD and respond to WMD events in the homeland. While Defense Support of Civil Authorities (DSCA) was incorporated into the Army's decisive action doctrine, the Army has not institutionalized DSCA capabilities in the same way that it has for offensive, defensive, and stability operations. The failure to institutionalize the

¹ Department of the Army Pamphlet (DA PAM) 600-3, *Commissioned Officer Professional Development and Career Management* (Washington, DC: Government Printing Office, 2014), 140.

DSCA mission includes CBRN consequence management (CM), despite more than a decade providing United States Northern Command (USNORTHCOM) with capabilities to respond to a WMD event in the homeland. This lack of institutionalization across the capability development domains creates a strain on the force as organizations work to train, man, and equip for both doctrinally assigned core missions and non-standard missions assigned through the Global Force Management (GFM) process. This strain on the force to provide trained and ready Chemical forces has been exacerbated by changes in the size and shape of the chemical force structure, creating friction as the Chemical Corps' attempts to meet the requirements of the joint force.

In addition to the evolution of the Chemical Corps' missions, over the last decade the Chemical Corps has undergone a significant change in the size and the shape of the force, as well as force distribution across the RA and RCs. While the RA was growing to meet the needs of sustained operations in Afghanistan and Iraq, the RA operational force of the Army Chemical Corps was reduced significantly.² In contrast, while the RA Chemical Force was getting smaller, the RCs were expanding and becoming the sole force provider of some CBRN capabilities. These changes in the size and shape of the corps, combined with increased operational requirements, have created the need to better integrate the RA and RCs to meet joint force requirements.

The challenges facing the Army for RA and RCs integration directly relate to institutional barriers erected over the past twenty-five years. While the Army National Guard (ANG) and Army Reserve (USAR) were initially established in the early 20th century to provide an accessible federal reserve force, over time, changes in the structure of, and relationships between, the RA and RCs have decreased their integration as a single force. The Total Force policy and Abrams doctrine adopted in the wake of the Vietnam War intended to irrevocably link the RA and RCs,

² The active component of the Army includes the Regular Army, Active Reserve, Full-Time National Guard and mobilized USAR and NG personnel. This paper focuses on assessing the existing operational force, which includes tactical units assigned to the RA, USAR, and ANG.

but structural changes, including the creation of the US Army Reserve Command (USARC) and elevation of the Chief of the National Guard Bureau (NGB) to a four-star general and member of the Joint Chiefs of Staff, have set the conditions for the components to operate as de fact services, and act in their individual interests, rather than the common interests of the service. These changes and the need for increased integration to ensure the readiness of the force to respond to emerging crisis requires the Army establish new policies that will enable the Chemical Corps to better integrate across all components.

To determine how to best integrate RA and RC forces, capabilities developers and Army leaders must clearly understand the forces affecting the generation of Chemical Corps' requirements and capabilities. First, understanding how the Chemical Corps has evolved in recent years is necessary in order to assess the corps' ability to meet contemporary challenges. Next it is critical that the Army understand the requirements placed on the Chemical Force based on the contemporary threat to support force shaping decisions. Lastly, the Army must understand the two competing aspects of the total force policy: the force distribution across all components and the evolution of the RCs, in order to support force distribution and develop policy that enables total force integration. Based on these considerations the Army has the opportunity to develop a Single Force Policy that better postures the Chemical Corps, and ultimately the Army as a whole, to meet the demands of the future operational environment.

The Transformation Discourse: A Capabilities Based Discussion, But is it Enough?

In October 2014, the Vice Chief of Staff of the Army approved a force design update that will transform a large part of the Army Chemical Corps' force structure.³ This transformation is the continuation of the corps' evolution from a Cold War passive defense focused force to a force capable of countering the full range of WMD threats and CBRN hazards. While the current redesign will enhance the CBRN force's capabilities, evolving threats, changes in operational requirements, and equipment modernization continue to energize discussions about the future size and shape of the Army Chemical Corps.

The need for the Chemical Corps to evolve to support future force requirements has been an enduring discussion among members of the CBRN Community of Practice. The discussion primarily focuses on what capabilities the corps requires and maintains a myopic focus on the RA. The emergence since 2003 of WMD Elimination (WMD-E) and CBRN CM as Army missions has also served to shape the dialogue. Over the last decade, the perceived evolution of threats, increased rate of change, and evolution of CBRN missions has created a variety of views on how the Army Chemical Corps should adapt to meet future force requirements.

WMD-Elimination: A Preventive Approach

In 2003, the United States invaded Iraq to oust the regime of Saddam Hussein and eliminate Iraqi WMD capabilities. The challenges faced in locating, securing, and ultimately destroying adversary WMD programs highlighted a significant gap in the Department of Defense's (DOD) capabilities. During the initial invasion, the United States relied heavily upon

³ LTC James Harwell. "The CBRN FDU: Building the Future Force Today," *The Army Chemical Review*, PB 3-15-1 (Summer 2015): 17-20.

ad-hoc organizations, drawing from DOD agencies and interagency partners, to locate and exploit potential WMD sites and materials.

While ultimately Iraq did not possess an active WMD program, US forces were still forced to deal with remnants of the Iraqi Desert Storm era WMD program that had previously been identified through the United Nations Monitoring, Verification and Inspection Commission mission. The Iraqi program included chemical weapons stores at the Al Muthanna Chemical Weapons Storage Facility and radiological material stored at the Al-Qaim Yellowcake Extraction Plant and Tuwaittha Nuclear Research Center.⁴ Due to lessons learned from Operation Iraqi Freedom, including operations conducted by the 75th Exploitation Task Force, Iraqi Survey Group, and Task Force McCall, DOD and Army leaders sought to identify the best means to institutionalize WMD-E capabilities. These lessons have supported the institutionalization of the WMD-E mission and have served to shape the force. In a 2004 National Defense University Center for the Study of Weapons of Mass Destruction Occasional Paper, Rebecca Herrsman, the future Deputy Assistant Secretary of Defense for Countering Weapons of Mass Destruction stated:

Current and likely future threats require a standing peacetime WMD elimination organization specifically assigned the WMD elimination mission. This organization should have a clearly established and accountable command and control structure, trained personnel, a combination of pre-identified and dedicated assets, and a general officer in command.⁵

⁴ Iraq Survey Group, *The Iraq Survey Group Comprehensive Report of the Special Advisor to the DCI On Iraq's WMD with Addendums*, Volume 3 (Washington, DC: Government Printing Office, 2004), 78; Iraq Survey Group, *The Iraq Survey Group Comprehensive Report of the Special Advisor to the DCI On Iraq's WMD with Addendums*, Volume 2 (Washington, DC: Government Printing Office, 2004), 75.

⁵ Rebecca K. C. Hersman, *Eliminating Adversary Weapons of Mass Destruction: What's at Stake?* (Washington, DC: National Defense University, 2004), 24.

Based on this need to provide a WMD-E capability, the Army activated the 20th CBRNE Command and two Technical Escort organizations to provide a standing WMD-E capability. The 20th CBRNE Command executes command and control of all US Army Forces Command (FORSCOM) assigned CBRN and Explosive Ordnance Disposal (EOD) units. The 20th CBRNE Command also provides WMD Coordination Elements to augment operational staffs executing countering WMD operations and Nuclear Disablement Teams capable of exploiting and destroying nuclear infrastructure. Lastly, the technical escort units provide the technical capability to exploit and destroy WMD. With the development of an initial countering WMD capability, contemporary discussion has shifted focus on how to best integrate CBRN, EOD, and other technical capabilities to provide relevant capabilities to maneuver commanders in support of the WMD-E mission.

Recommendations for increased integration have ranged from the creation of a new chemical, biological, radiological, nuclear, and explosive (CBRNE) branch and fixed CBRNE formations to the development of new doctrinal solutions.⁶ Most recently, BG J.B. Burton, the former Commanding General of the 20th CBRNE Command, touted the potential of mission tailored CBRNE Task Forces based on performance at the National Training Center, advocating

The 20th CBRNE Command is proposing to reorganize and regionally align the command into three multifunctional CBRNE brigade task forces, with each task force enabled by a chemical, biological, radiological, nuclear, and explosives coordination element (CCE) that is enhanced with robust CBRNE planning and technical reachback capabilities....Organizing 20th CBRNE Command capabilities into regionally aligned, scaled, and tailored CBRNE task forces is an important step in meeting the Nation's strategic guidance for this one-of-a-kind formation; and it provides our Army and our

⁶ Robert Walk, "A Modest Proposal: Shatter the Retorts, Defuse the Bomb, and Stabilize the Atom," *The Army Chemical Review*, PB 3-06-1 (Summer 2006): 35-38.; James Harwell, "Transforming the Force: Organizing Army CBRNE Forces to Face the Evolving CBRNE Threat" (Capstone Project: Georgetown University, 2009).

Nation with an improved solution for delivering an integrated CBRNE capacity to meet expeditionary and campaign requirements.⁷

These efforts have stimulated discussion within the capabilities development community.

However, the challenge facing the Chemical Corps is balancing WMD-E with other requirements.

Since 2006, the Army has maintained capabilities to execute the CBRN CM mission to respond to WMD threats and CBRN hazards in the homeland.

CBRN Consequence Management: Balancing Domestic and Global Operational Requirements

In 2006, amid growing fears of WMD terrorism, the DOD developed the CBRNE Consequence Management Response Forces (CCMRF). In 2010, Secretary of Defense Robert Gates issued Resource Management Decision (RMD) 700 directing “Restructure of DOD Domestic Chemical, Biological, Radiological, Nuclear, and High-Explosive (CBRNE) Consequence Management (CM) Response Forces (CCMRF).”⁸ RMD 700 paved the way for the establishment of the USNORTHCOM CBRN Response Enterprise (CRE). “The CRE is a multi-component, layered approach designed to rapidly deploy and employ to save lives, minimize human suffering, mitigate the effects of CBRN environments, and maintain public confidence.”⁹ In 2012, based on Secretary of Defense guidance and global force management decisions, the Army assumed the predominant role in providing capabilities to the CRE by sourcing much of the Defense CBRN Response Force (DCRF), Command and Control CBRN Response Elements (C2CRE), National Guard (NG) Homeland Response Forces (HRF), and NG CBRN Enhanced

⁷ BG J.B. Burton, COL F. John Burpo, Elmore Smoak, “CBRNE Task Forces,” *The Army Chemical Review*, PB 3-15-1 (Summer 2015): 9-13.

⁸ McHale, Paul. *Critical Mismatch: The Dangerous Gap Between Rhetoric and Readiness in DOD’s Civil Support Missions* (Washington, DC: The Heritage Foundation, August 2012): 24.

⁹ Van Camp, Brett. *Chemical, Biological, Radiological, & Nuclear Response Enterprise: A Way Ahead* (Carlisle Barracks, PA: United States Army War College, March 2012): 11.

Response Force Packages (CERF-P). These task organized formations provide a combination of CBRN survey and assessment, search and rescue, mass casualty decontamination, medical, security, aviation and logistics capabilities to respond to catastrophic events in the homeland. Sourced on a rotational basis, these formations provide the Commander, USNORTHCOM with a ready force but create significant challenges for force providers.

From the inception of the CCMRF in 2006, the Army faced challenges to train, man and equip rotational units capable of responding to CBRN events in the homeland. While the 2010 transition to DCRF potentially increased responsiveness, it failed to address the challenges of generating rotational forces for “non-standard” missions.¹⁰ These force generation challenges have provided the impetus for continued discourse on meeting homeland requirements. In 2012, COL Brett Van Camp, a former DCRF Task Force Operations Commander, recommended that the Army “Man, train, and equip the RA Maneuver Enhancement Brigades (MEB) for the DSCA mission.” His recommendation focused on making required force structure organic to the MEB to support DSCA operations, and source rotational mission requirements on a bi-annual basis in order to reduce costs and increase return on investment.¹¹ While the idea of maintaining fixed forces structure for the DSCA mission remains relevant, the Army has chosen to eliminate all RA MEBs during the current drawdown. This decision is indicative of the challenges facing the Army as it attempts to build a force capable of executing the full range of decisive action operations.

Despite being an element of the Army’s decisive action doctrine, the Army has not institutionalized DSCA across the doctrine, organization, training, materiel, leadership and education, personnel, facilities, and policy (DOTMLPF-P) capabilities development domains, in the same way that offensive, defensive, and stability operations have. The Maneuver Support

¹⁰ McHale, 26.

¹¹ Van Camp, 26.

Center of Excellence (MSCOE) is the designated proponent for CBRN CM capabilities development but units in the operational force do not view DSCA as a core mission. Army units only train on DSCA tasks after receiving the mission on a rotational basis. To alleviate the costs to the Army and increase operational effectiveness, recommendations have been made by leaders from across the Chemical Corps to establish standing CBRN CM forces versus rotational forces.¹² Furthermore, assigning these forces to US Army North (Fifth Army) could increase training and readiness oversight and mission focus. These recommendations would greatly enhance training proficiency but also decrease resource availability for emergent requirements, negatively affecting the Chemical Corps' ability to execute its core mission to protect the force.

Passive Defense: A Mission Often Forgotten, but Not Gone

Over the last decade, much of the Army's discourse surrounding Chemical Corps transformation centered on providing increased technical capabilities for WMD-E and CBRN CM. However, as the service transitions from an "Army of execution" to an "Army of preparation," members of the community of practice have come to the realization that the Corps must refocus on its traditional passive defense missions: reconnaissance, decontamination, and obscuration. This argument gained credence from the 2014 Army Strategic Planning Guidance (ASPG), which identified "protect Army capabilities" as the top goal of Army CWMD operations. While the argument for the traditional missions has not been the loudest, this argument has resonated with the senior leadership of the Army.

¹² Justin P. Hurt, "Designing the Army's Future Active Duty Weapons of Mass Destruction Response: Is the Defense Chemical, Biological, Radiological, Nuclear and High-Yield Explosives Response Force (DCRF) the Right Force at the Right Time?" (Master's Thesis, 2013), 117.

The recognition of CBRN defense as a core mission of the Army Chemical Corps is not new. Following the near abolition of the Chemical Corps in the post-Vietnam War era, the Army conducted a series of Combined Arms in Nuclear/Chemical Environment (CANE) studies, to “examine the effects of a nuclear/chemical environment on current operations.”¹³ Conducted against the backdrop of the Cold War Soviet threat, the CANE studies quantitatively assessed the degradation of military operations conducted in a contaminated environment, emphasizing the role of passive defense capabilities. The CANE studies emphasis on passive defense had a significant effect on the shape of the Chemical Corps, emphasizing contamination avoidance and decontamination. Russia, the United States’ traditional WMD armed adversary, has declared the destruction of its massive Soviet era chemical biological stockpiles in compliance with international laws and continues to reduce its nuclear arsenal in accordance with its bilateral agreements with the United States. However, a nascent nuclear arms race in Asia, the continued stockpiling of chemical weapons by potential failed or failing states, and the potential misuse of dual-use technologies for clandestine WMD development, have replaced the Cold War Soviet threat and maintain the relevance of the CANE studies.

Though the Army completed the CANE studies more than two decades ago, the results of the studies are timeless. They reinforce the reason the Chemical Corps has been retained as a branch of the Army; to protect the force against CBRN employment on the battlefield. The capabilities that enable contamination avoidance and protection have long been the cornerstones of Army and Joint investment but are now beginning to compete against WMD-E and CBRN CM for limited resources. While the evolution of the Chemical Corps’ over the last decade was defined by evolving missions and introduction of new capabilities, the problem in the future will center on how to shape the force to balance these capabilities.

¹³ Mauroni, Albert J., *America's Struggle with Chemical-Biological Warfare* (Westport, CT.: Praeger, 2000), 81.

The Modern Chemical Corps: A Question of Sufficiency

The 2014 ASPG highlights the challenge facing the Chemical Corps today as it attempts to do more in an era of reduced resources and increased resource competition. The ASPG outlines five “fundamental CWMD goals” for the Army: protect Army capabilities, interdict and eliminate adversarial capabilities, respond if WMD use occurs, and enhance capacity of partners and allies during steady state operations. In an era of increased resource competition, achieving these goals will require the Army to utilize existing resources more effectively. This focus on increased efficiency is consistent with current guidance to “do more, without more,” and to “provide an all volunteer force that is leaner, adaptive, flexible and offers the President a significant number of options in the event of conflict.”¹⁴ This will demand trade-offs and require the Army to balance the force to provide the right capabilities at the right time. With many capabilities having been entirely transferred to the RCs, the question now becomes, “How does the Army best integrate RA and RC Chemical forces to provide ready, reliable formations capable of supporting the full range of CBRN operational requirements?”

¹⁴ Ashton Carter, “Better Buying Power: Guidance for Obtaining Greater Efficiency and Productivity in Defense Spending,” September 14, 2010, accessed January 3, 2016, <https://dap.dau.mil/policy/Documents/Policy/Memo%20for%20Acquisition%20Professionals.pdf>; Mark R. Lewis, “US Army: Office of Business,” *US Army*, November 24, 2015, accessed January 3, 2016, <http://www.army.mil/obt>.

The Contemporary Chemical Force and the Forces of Change

Resources are finite and constantly changing. In the current fiscal and political environment, resources are on the decline while mission requirements continue to expand as the Army seeks to remain globally responsive and regionally engaged. Fiscal constraints place a burden on the force to maximize available resources. Three competing forces influence how the Army invests in CBRN force structure: threat, requirements, and resources. These forces contribute to the understanding of the environment and, through the Army Force Management system, enable resource-informed, integration-focused, outcome-based capabilities development. These forces apply constant pressure, though the degree to which these forces individually affect force structure decisions change over time. Understanding how these forces have affected force structure decisions over time enables leaders to develop strategies for sustained readiness in a complex decision making environment.

Pandora's Box: The Growing WMD Threat

Though WMD employment has been rare, the potential use of WMD and possible catastrophic effects have been enduring aspects of the 20th and 21st century operating environment. Despite international efforts to prevent the proliferation of WMD, both state and non-state actors have and will continue to seek chemical, biological, radiological, and nuclear weapons to hedge against American military superiority and threaten unsuspecting, unprotected populations. Since 2000, the United States has conducted military operations against three WMD armed adversaries (Iraq, Libya, and Syria) and responded to the 2001 anthrax attacks on the homeland. The potential for WMD proliferation has increased to the point that in 2008 the congressionally appointed Commission on the Prevention of Weapons of Mass Destruction Proliferation and Terrorism predicted a WMD terrorist attack, somewhere in the world, by the

end of 2013.¹⁵ While the attack predicted by the Commission on the Prevention of Weapons of Mass Destruction Proliferation and Terrorism never occurred, terrorists continue to seek WMD to threaten the United States and its interests. These events serve to provide a renewed emphasis for capabilities to prevent, respond to, and recover from WMD attacks.

Chemical weapons are the most prevalent and oldest class of WMD. The first chemical weapons were nothing more than toxic industrial chemicals released on the battlefield. After witnessing the effects of chemical weapons in World War I, General John J. Pershing, the Commander of the American Expeditionary Force, noted, “whether or not gas will be employed in future wars is a matter of conjecture, but the effect is so deadly to the unprepared that we can never afford to neglect the question.”¹⁶ In spite of the lessons learned in WWI and international efforts to restrict the production, stockpiling and use of chemical weapons, during the Cold War several nations, including the United States amassed massive stockpiles. Additionally, states such as North Korea, Syria, Egypt, Iran, and Israel have not joined the 1997 “Convention on the Prohibition of the Development, Production, Stockpiling, and Use of Chemical Weapons and on Their Destruction” (CWC). Complicating the threat, in recent years, non-state actors have also sought to acquire chemical weapons. In March 1995 members of the Aum Shinrikyo Doomsday Cult released sarin gas on the Tokyo subway killing twelve people and injured nearly 4,000 more.¹⁷ The Aum attack served as a potential model for terrorist use of WMD against unsuspecting, unprotected civilian populations. Since the attack, terrorist organizations have

¹⁵ Bob Graham and Jim Talent, *World at Risk: The Report of the Commission On the Prevention of WMD Proliferation and Terrorism* (New York: Vintage Books, 2008), xv.

¹⁶ Al Mauroni, “The US Army Chemical Corps: Past, Present, and Future,” The Army Historical Foundation, 2015, accessed December 1, 2015, <https://armyhistory.org/the-u-s-army-chemical-corps-past-present-and-future/>.

¹⁷ Jonathan B. Tucker, *Toxic Terror: Assessing Terrorist Use of Chemical and Biological Weapons*, BCSIA Studies in International Security (Cambridge, MA.: MIT Press, 2000), 207-27.

made a concerted effort to obtain chemical weapons. In 1998, the Clinton administration uncovered al Qaeda's efforts to develop VX nerve agent in Sudan.¹⁸ In 2014, the Daesh terrorist organization seized the Al Muthana Chemical Weapons complex, the storage site for Iraq's Iran-Iraq War era chemical stockpile.¹⁹ While the massive stockpiles of the Cold War have largely been destroyed under the CWC, the continued pursuit of chemical weapons by rogue states and terrorist organizations demonstrates that the threat posed by chemical weapons has not subsided while, at the same time, advances in the life sciences have made biological weapons a much more viable option.

Biological weapons have long been the domain of only the most advanced states. While historically attempts at biological weapons employment achieved mixed results, technological advances in the life sciences and the proliferation of knowledge regarding the production, storage and dissemination of biological weapons has made these weapons a feasible option for both state and non-state actors. Based on the indiscriminate killing potential of weaponized pathogens, the international community negotiated the 1975 "Biological and Toxin Weapons Convention" (BWC). Like the CWC, the BWC prohibited the production, stockpiling, and use of biological weapons, in an attempt to eliminate the unavoidable consequences of biological warfare. However, unlike the BWC, the CWC lacks measures to identify and respond to potential violations. Historically, this lack of enforcement mechanisms, including challenge inspections, has enabled nations such as the Soviet Union to continue to develop biological weapons with little policy risk. Following the

¹⁸ Jonathan Tucker, *War of Nerves: Chemical Warfare from World War I to Al-Qaeda* (New York: Anchor, 2007), 365-366.

¹⁹ Damien McElroy, "ISIS Storms Saddam-Era Chemical Weapons Complex in Iraq", *Telegraph*, June 19, 2014, accessed October 28, 2015, <http://www.telegraph.co.uk/news/worldnews/middleeast/iraq/10913275/Isis-storms-Saddam-era-chemical-weapons-complex-in-Iraq.html>.

fall of the Soviet Union, the United States discovered the Soviets had maintained a massive production apparatus to weaponized biological agents for a strategic second strike capability. This dual-use nature of both offensive and defensive biological weapons research, development and manufacturing capabilities made it possible for the Soviet Union to maintain the program without arousing suspicion among the western powers. The inability to identify the Soviet Union's massive Biopreparat biological weapons enterprise, highlights the challenge facing the world today as both the technology and the intellectual capital necessary to produce biological weapons, have become more readily available. The expanded availability has increased the potential for biological weapons proliferation to both state and non-state actors. In 2002, US forces seized al Qaeda's Tarnak Farms training facility near Kandahar, Afghanistan, where they discovered that the terrorist group was building a laboratory for the production of anthrax.²⁰ In 2010, al Qaeda in the Arabian Peninsula urged "brothers with degrees in microbiology or chemistry ...to develop a weapon of mass destruction."²¹ Advances in the life sciences and the proliferation of dual use technologies have complicated the ability to assess the intent and capability of both state and non-state actors to develop biological weapons, increasing the potential for strategic surprise. These advances have increased the risk of biological weapons use to the point that, according to the

²⁰ Michael R. Gordon, "US: Al Qaeda Was Building Lab for Bioweapons," *Chicago Tribune*, March 24, 2002, accessed December 1, 2015, http://articles.chicagotribune.com/2002-03-24/news/0203240285_1_al-qaeda-biological-agents-camps-and-other-sites.

²¹ Stephanie Nebehay and Arshad Mohammed, "Biological Weapons Threat Is Growing, U.S. Warns," *Reuters News Service*, December 17, 2011, accessed December 1, 2015, <http://www.reuters.com/article/2011/12/07/us-arms-biological-idUSTRE7B60RV20111207#Sk2AfJ5zqTmLgUxS.97>.

Commission on the Prevention of Weapons of Mass Destruction Proliferation and Terrorism, a biological weapons attack is more likely than a nuclear attack.²²

When the United States detonated the first nuclear weapon at the Trinity Test Site on July 16, 1945, it demonstrated to the world the deadly potential of nuclear weapons and set into motion the end of World War II, but also set the conditions for both global and regional nuclear arms races. For nearly half a century following the test the world stood at the brink of nuclear war, but that war never came. Instead, the Cold War ended quietly. The legacy of this era is still quite visible however. While the United States and the former Soviet Union struck a balance through massive arsenals and a policy of Mutually Assured Destruction, contemporary adversaries recognize the power of even a single weapon. At the same time, the intellectual capital necessary to build the bomb has become available to non-nuclear weapons states. While the threat of nuclear annihilation on a global scale has largely subsided, the potential for a nuclear attack against the United States, its allies, and its interest, has not. Since the implementation of the “Treaty on the Non-Proliferation of Nuclear Weapons” (NPT) five new states have demonstrated the ability to successfully explode a nuclear weapon, with Iran on the cusp of joining that select group.²³ Additionally, AQ Khan, the father of the Pakistani nuclear weapon, demonstrated the potential risk posed by the illicit trafficking of nuclear secrets aiding Iranian and

²² Graham, xv.

²³ In accordance with the NPT, Russia, China, France, the United Kingdom, and the United States comprise the declared nuclear weapons states. All other states possessing nuclear weapons are in violation of the NPT. Since the NPT entered into force, South Africa, India, Pakistan, Israel, and North Korea have developed and demonstrated nuclear weapons capabilities. South Africa eliminated its nuclear weapons program in 1990 and joined the NPT in 1994. While South Africa has dismantled its nuclear arsenal, it has retained its weapons grade uranium stockpile. Joseph Cirincione, Jon B. Wolfsthal, and Miriam Rajkumar, *Deadly Arsenals: Nuclear, Biological, and Chemical Threats*, 2nd ed. (Washington, DC: Carnegie Endowment for International Peace, 2005), 219-294, 407-411, accessed March 24, 2016, <http://catdir.loc.gov/catdir/toc/ecip0512/2005012915.html>.

North Korean development efforts.²⁴ In 2001, in the days just before the 9/11 terrorist attacks, Pakistani scientists met with Osama Bin Laden in Kandahar, Afghanistan to discuss Al Qaeda's efforts to acquire a nuclear weapon.²⁵ While their efforts were fruitless, the continued proliferation of nuclear weapons makes it only a matter of time before a nuclear weapon is used either on the battlefield or against a civilian target. Due to their deterrent effect and destructive capabilities, nuclear weapons remain the Holy Grail for both state and non-state actors seeking to deter and/or threaten the United States and its interests.

The WMD arms race was a dangerous characteristic of the Cold War. While the Cold War and the fall of the Soviet Union ended the arms race between the United States and the Soviet Union, it left an equally dangerous legacy for smaller WMD arms races all around the globe, especially in the most unstable regions of Asia, posing a threat to global stability. States continue to research, develop, and field weapons of mass destruction as a hedge against both regional and extra-regional adversaries. This includes both traditional threat agents, and potentially new, "non-traditional" agents. In a 1998 interview for *Time* magazine, Osama Bin Laden made Al Qaeda's intentions clear stating,

Acquiring weapons for the defense of Muslims is a religious duty. If I have indeed acquired these weapons, then I thank God for enabling me to do so. And if I seek to acquire these weapons, I am carrying out a duty. It would be a sin for Muslims not to try to possess the weapons that would prevent the infidels from inflicting harm on Muslims.²⁶

²⁴ Douglas Frantz and Catherine Collins, *The Nuclear Jihadist: The True Story of the Man Who Sold the World's Most Dangerous Secrets--and How We Could Have Stopped Him* (New York: Twelve, 2007).

²⁵ Graham T. Allison, *Nuclear Terrorism: The Ultimate Preventable Catastrophe*, Owl Books Ed. (New York: Henry Holt, 2005).

²⁶ "Hunting Bin Laden: Osama bin Laden v. the US: Edicts and Statements," *PBS Frontline*, September 2001, accessed December 1, 2015, <http://www.pbs.org/wgbh/pages/frontline/shows/binladen/who/>.

This declaration, in the wake of the 1995 Tokyo Subway attack sent a clear message that the world had changed and the WMD threat was now a much more “wicked” problem. While the end of the Cold War between the superpowers reduced the scale of potential attacks significantly, the probability of an attack continued to grow. The United States Army could no longer afford to focus solely on protecting its forces on the battlefield, now it also had to be able to prevent adversary use of WMD and respond to, and recover from, an attack against the US homeland and other American interests.

Doing More: The Evolving Missions of the Army Chemical Corps

Based on the perceived increased threat posed by WMD, policy makers have applied increased emphasis in the nation’s ability to protect against, respond to, and recover from a WMD attack. The 2002 *National Strategy to Combat WMD* outlined three pillars that served to shape US Government efforts: Counterproliferation to Combat WMD Use, Strengthened Nonproliferation to Combat, and Consequence Management to Respond to WMD Use.²⁷ To support these efforts, the DOD identified eight mission areas in which military capabilities could support national strategic objectives: offensive operations, elimination operations, interdiction operations, active defense, passive defense, WMD consequence management, security cooperation & partnership activities, and threat reduction cooperation.²⁸ Three of these mission areas: passive defense, elimination operations, and WMD consequence management, would shape the future force.

²⁷ *National Strategy to Combat WMD* (Washington, DC: Government Printing Office, 2002), 2.

²⁸ *National Military Strategy to Combat WMD* (Washington, DC: Government Printing Office, 2006), 7.

Passive defense is the Chemical Corps' traditional mission. Protecting the force from CBRNE hazards has been a core component of the Corps' mission since its creation in the wake of World War I. "Chemical, biological, radiological, and nuclear (CBRN) passive defense includes measures taken to minimize or negate the vulnerability to, and effects of, CBRN attacks. This mission area focuses on maintaining the ability to continue military operations in a CBRN environment."²⁹ While the Chemical Corps has transformed to meet the mission requirements for WMD elimination and CBRN consequence management, the vast majority of Chemical Corps force structure remains focused on passive defense requirements, including reconnaissance, surveillance, and decontamination.

In 2003, the ad-hoc organizations tasked to eliminate Iraqi WMD, consisted of personnel "drawn from across DOD and other government agencies, which included intelligence specialists, microbiologists, physicists, chemists, and other scientific experts and uniformed personnel experienced in handling hazardous materials."³⁰ Following the failed search for Iraqi WMD, the DOD took steps to institutionalize the WMD elimination capability. "WMD elimination operations are actions to systematically locate, characterize, secure, disable, or destroy WMD programs and related capabilities."³¹ The capabilities required to execute the WMD elimination mission extend beyond the Chemical Corps but the corps provides technical capabilities that enable the Army to locate, characterize, exploit, and ultimately destroy WMD. These capabilities

²⁹ Field Manual (FM) 3-11. *Multi-Service Doctrine for Chemical, Biological, Radiological, and Nuclear Operations* (Washington, DC: Government Printing Office, 2011), 2-10.

³⁰ Rebecca K.C, Hersman and Todd M. Koca, "Eliminating Adversary WMD: Lessons for Future Conflicts," *Strategic Forum* no. 211 (October 2004): 2, accessed November 1, 2015, <http://wmdcenter.dodlive.mil/files/2012/02/Eliminating-Adversary-WMD-LforFC.pdf>.

³¹ Army Techniques Publication (ATP) 3-11.23. *Multi-Service Tactics, Techniques, and Procedures for Weapons of Mass Destruction Elimination Operations* (Washington, DC: Government Printing Office, 2013), 1-1.

require specific, unique technical skills that cause resource competition relative to the passive defense and CBRN consequence management missions.

Historically, the DOD does not build capabilities specifically for defense support to civil authorities; rather the department viewed defense support of civil authorities (DSCA) as a secondary mission and leveraged existing capabilities in support of requests for assistance from interagency partners. Over the last decade, that has changed. The *2001 Quadrennial Defense Review* (QDR) emphasized that DOD “maintains many unique capabilities for mitigating and managing the consequences of terrorist attacks on American soil” and that “the Department must be prepared to provide support to state and local authorities, if requested by the lead federal agency.”³² In 2009, the DOD operationalized this guidance and established the CCMRF to respond to terrorist WMD attacks against the homeland. CBRN Consequence Management consists of “actions taken to plan, prepare, respond to, and recover from chemical, biological, radiological, and nuclear incidents.”³³ The 2010 QDR institutionalized the CBRN consequence management mission and expanded force requirements, reorganizing the existing CCMRFs as part of the establishment of the USNORTHCOM CRE. The CRE provides expanded, responsive lifesaving capabilities. It establishes the DCRF, two C2CRE, ten HRF, and seventeen CERF-P.

With More: The Contemporary Chemical Force

The Army personnel end strength is the troop level authorized by Congress annually. It is divided to meet resource requirements for the joint force commitments (JTD), operating force

³² *Quadrennial Defense Review* (Washington, DC: Government Printing Office, 2001), 42, accessed November 1, 2015, <http://archive.defense.gov/pubs/pdfs/qdr2001.pdf>.

³³ Army Techniques Publication (ATP) 3-11.41. *Multi-Service Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Consequence Management Operations* (Washington, DC: Government Printing Office, 2015), 1-2.

(TOE/MTOE), generating force (TDA); and Trainees, Transients, Holdees, and Student (TTHS) accounts.³⁴ Within the operating force, the Army Chemical Corps is comprised of Standard Requirements Code (SRC) 03, “Chemical Force,” units and personnel assigned to a variety of positions outside SRC 03, including BCT reconnaissance platoons and battalion and higher staffs. This paper focuses entirely on the capabilities and capacity of SRC 03 organizations to support the previously described Army operational mission requirements. The Army has been in a constant state of change since the end of the Cold War as it seeks to posture the force to meet the challenges of the current and future operational environments. To understand the unique conditions facing the Chemical Force as it continues seeks to optimize resources to meet evolving requirements, it is necessary to understand how it looks today and how it has evolved relative to the rest of the Army.

Since 2001, the Army has been in a state of perpetual conflict conducting operations not only in Iraq and Afghanistan, but around the globe to support the nation’s interests. To meet worldwide requirements, the Army grew from a 2002 peacetime total force of 1,035,002 soldiers across all components, approved prior to the invasion of Afghanistan, to a peak 1,132,600 as it executed operations across two theaters and supported emerging contingencies. As figure 1 illustrates, relative to its 2002 peacetime strength, the RA enjoyed the preponderance of growth. That growth however, was not proportional across all SRCs, as the Army shaped the RA to meet the persistent rotational requirements for the Iraq and Afghanistan theaters of operations.

³⁴ The DOD and Army use multiple types of documents to establish authorizations for organizations. Joint Tables of Distribution (JTD) identify service manning requirements for joint headquarters, including Joint Task Forces and Standing Joint Force Headquarters. Table of Organization and Equipment (TOE) establish standard personnel and equipment requirements based on Training and Doctrine Command organizational design, while Modified Table of Organization and Equipment (MTOE) establishes authorizations based on available resources and unit missions.

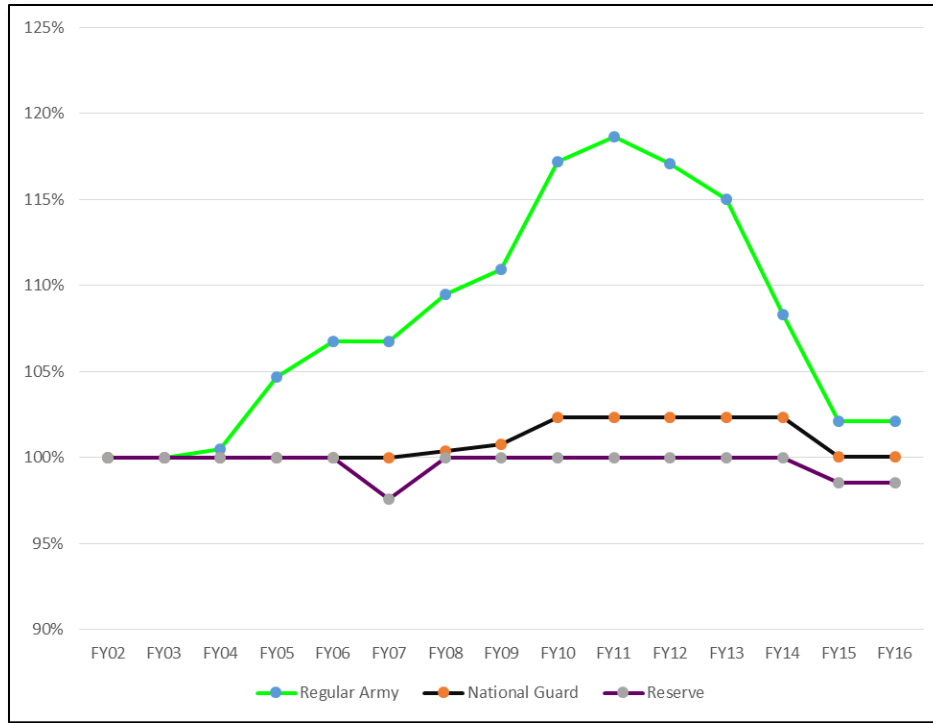


Figure 1. Total Army End Strength FY02-FY16

Source: Data from United States Army Force Management Support Agency (USAFMSA), accessed December 2, 2015, <https://fmsweb.army.mil>.

As figure 2 illustrates, despite the increase in overall end strength across the Army, the number of personnel assigned to Army force has remained relatively stable. In contrast, since 2002, the Chemical Force grew by twenty-three percent and, while most of the Army operating force end strength has dropped below pre-war strength, the Chemical Force is still eight percent larger than 2002 levels. The biggest difference though, is where growth occurred.

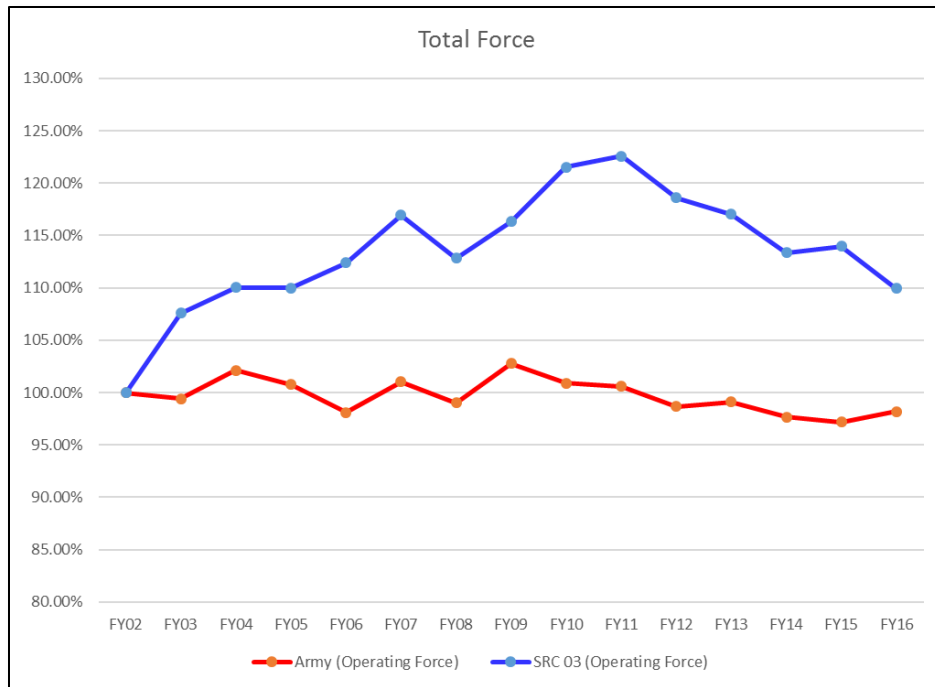


Figure 2. Operating Force End Strength, Total Army vs SRC 03, FY02-FY16

Source: Data from United States Army Force Management Support Agency (USAFMSA), accessed December 2, 2015, <https://fmsweb.army.mil>.

Figure 3 illustrates the SRC 03 growth relative to the RA operating force. Through 2009, the Chemical Force grew at roughly the same rate as the RA operating force. After 2009 however, SRC 03 declined at a significantly higher rate. While the RA operating force overall returned to 2002 levels, 2016 Chemical Force authorizations are only seventy-eight percent of previous peacetime levels. This translates into a significant shift in both the capabilities and capacity of the contemporary Chemical Force. In 2002, the RA chemical force consisted of three battalions and twenty-four chemical companies. The Soldier Biological Chemical Command, a major command in the Army Generating Force, also provided capabilities from US Army Technical Escort Unit (USATEU). This provided a total of four battalions and twenty-seven companies supporting operational requirements. All of these formations, with exception of the USATEU, provided passive defense capabilities. Much of the growth that occurred between 2002 and 2010 can be

attributed to the transition of USATEU capabilities from the generating to the operating force. Since 2010 however, the RA Chemical Force has been reduced by thirty-four percent, dropping it to seventy-seven percent of its pre-war end strength. Compounding this reduction is the fact that many capabilities have been entirely transitioned to the reserve component, reducing their availability for unforeseen contingency operations.

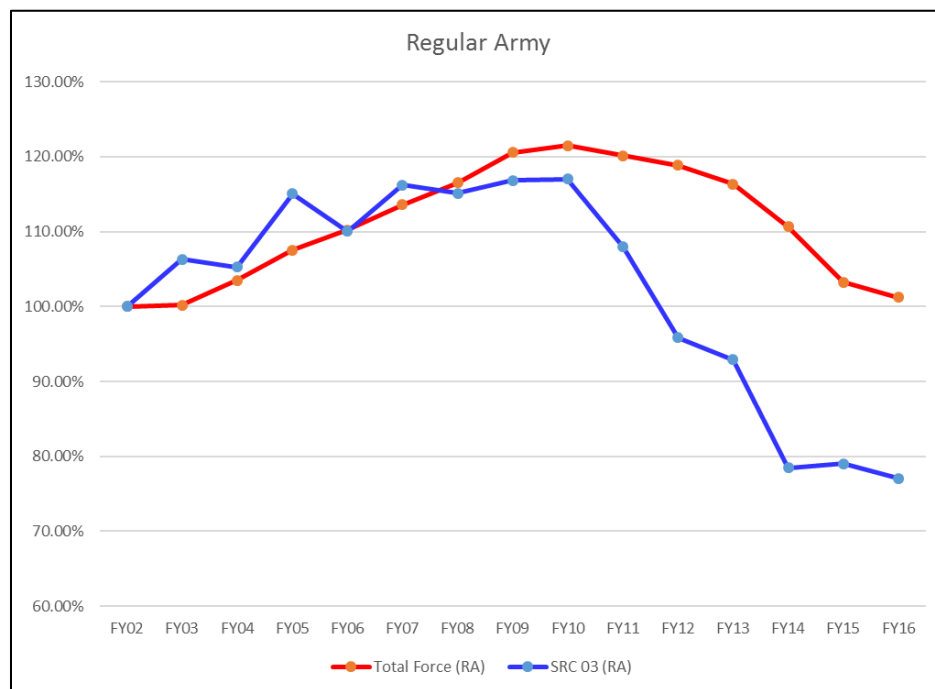


Figure 3. RA End Strength, Operating Force vs SRC 03, FY02-FY16

Source: Data from United States Army Force Management Support Agency (USAFMSA), accessed December 2, 2015, <https://fmsweb.army.mil>.

In contrast to the RA Chemical Force, significant growth has occurred in the RCs. In particular, while the overall ANG operating force end strength has fallen by 16 percent since 2002, as figure 4 illustrates, the ANG Chemical Force has grown by thirty-five percent. Likewise, as figure 5 illustrates, while the Army Reserve has not grown over the last fourteen years, the Chemical Force within USAR has grown by ten percent. In addition to the relative growth of the

Chemical Force within each of the RCs, many capabilities have been completely transitioned to the ANG and USAR, including all of the Army's generated smoke, heavy decontamination, and biological detection units. This places a greater reliance on the RCs for unique, low density capabilities.

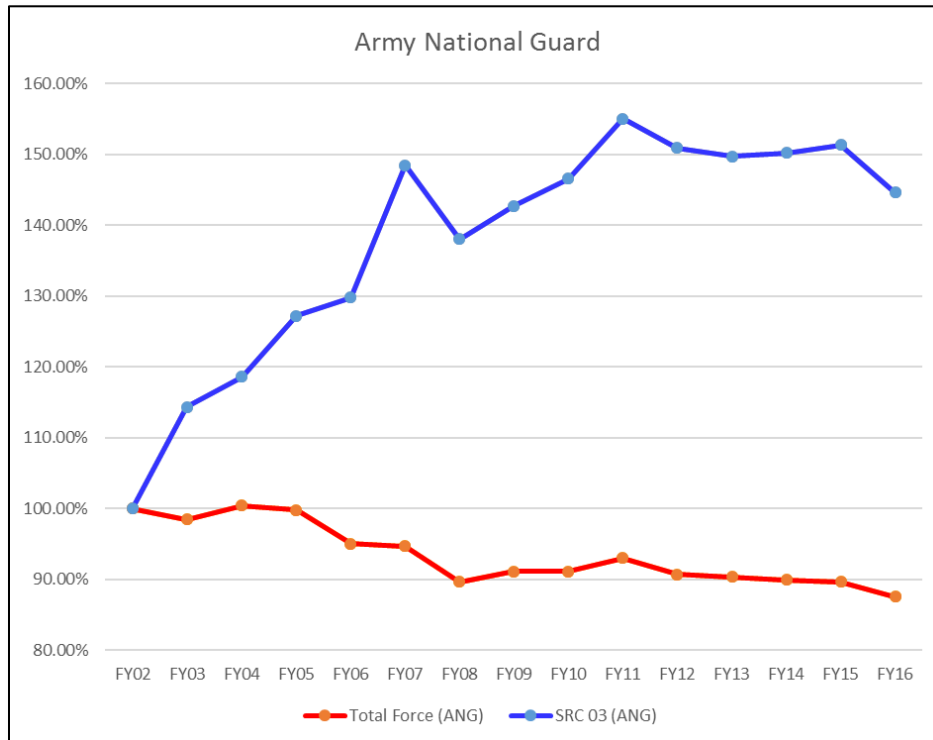


Figure 4. ANG End Strength, Operating Force vs SRC 03, FY02-FY16

Source: Data from United States Army Force Management Support Agency (USAFMSA), accessed December 2, 2015, <https://fmsweb.army.mil>.

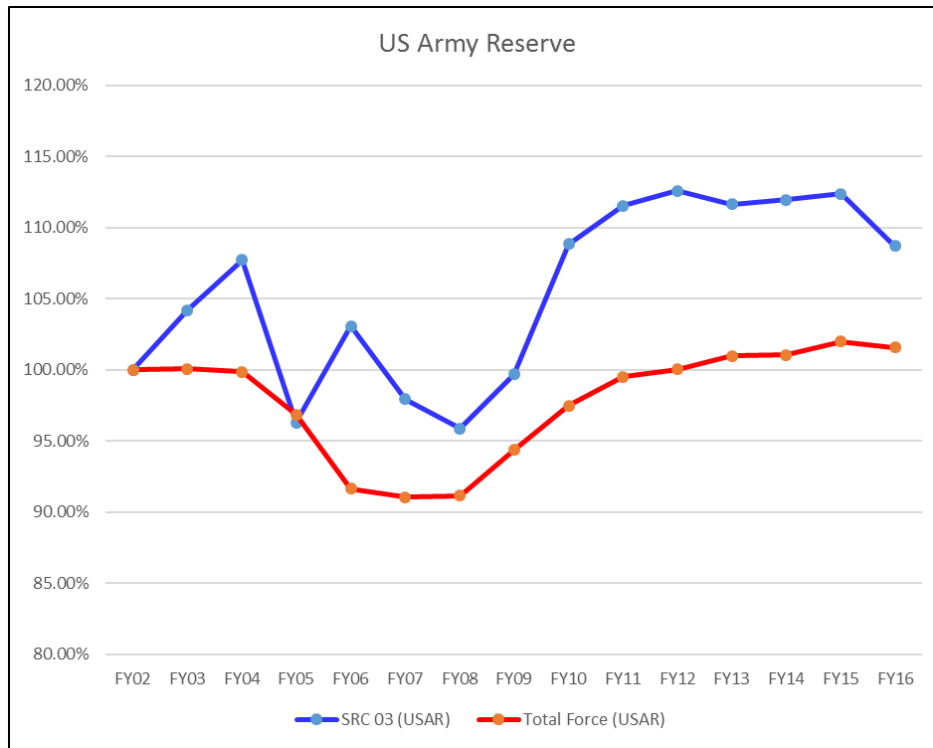


Figure 5. Army Reserve End Strength, Operating Force vs SRC 03, FY02-FY16

Source: Data from United States Army Force Management Support Agency (USAFMSA), accessed December 2, 2015, <https://fmsweb.army.mil>.

Over the last two decades, the forces of change have had a significant impact on the size and shape of the Army Chemical Force. At the same time that threat and mission requirements were expanding, fiscal pressures were eroding resource availability. For much of the Army, this has meant doing more with less. But that is not true for the Army Chemical Force, rather it is necessary to develop strategies for better integrating the total force to provide the right mix of capabilities, at the right time, with sufficient capacity, to support Army mission requirements.

Three Teams, One Fight: Institutional Barriers to Total Force Integration

In 1970, Secretary of Defense Melvin R. Laird announced the establishment of the Total Force Policy. The purpose of the Total Force Policy was to cut defense spending by reducing the overall strengths and capabilities of the Active Forces, and increasing reliance on the combat and combat support units of the ANG and USAR. Based on the lower peacetime sustainment costs of the RCs, the Total Force Policy enabled the United States to meet national security requirements by maintaining a larger total force at a reduced total cost.³⁵ While the DOD has sought to improve upon Total Force Policy, since the policy's initial issue, the institutionalization of the separation of the Army's components has served to significantly undermine RA / RCs integration.

The total force consists of RA forces, the ANG, and the USAR. Historically, the RA provides the capabilities to meet emerging contingencies and support steady state national security objectives, while the RCs provide strategic depth. Over the last century, as the three components have evolved, the relationships between the components have changed significantly setting the conditions for the current challenges facing the total force and RA/RCs integration.

The National Guard

The ANG traces its lineage back to the first colonial militia established in the Massachusetts Bay Colony in 1636.³⁶ From the founding of the republic until the beginning of the 20th century, state militias were established, trained, manned, and equipped, though not always resourced, by states for the expressed purpose of repelling invasion, enforcing the laws of the Union, and suppressing insurrections.³⁷ Following the Spanish-American War however, Secretary

³⁵ *Cong. Rec.*, 101st Cong., 2d sess., 1990, 136, pt. 67: H2949.

³⁶ "National Guard Birth Date," *National Guard*, accessed January 2, 2016, <http://www.nationalguard.mil/AbouttheGuard/Howwebegan.aspx>.

³⁷ *US Constitution*, art. 1, sec. 8.; *Militia Act of 1792*.

of War Elihu Root recognized that the militia system required reforms if it was to serve as a modern ready reserve. The Militia Act of 1903 began the formation of the modern NG, providing federal funding and standardizing the organized militia's force structure with its RA counterpart. In 1908, the Act was further amended to remove federal service limitations and empower the president to mobilize the NG for overseas deployment. The 1916 National Defense Authorization Act enhanced federal oversight and institutionalized the dual state-federal status of the militia, providing the federal executive authority to direct the number and types of militia units formed and creating the Militia Bureau, the predecessor to the modern NGB.³⁸ While the NG remained a state asset when not mobilized for federal service, the reforms of the early 20th century cemented federal control of the NG as a national reserve. While states challenged these changes, in 1990 the Supreme Court issued a ruling in *Perpich v. the United States Department of Defense* that the Congress could authorize the President to order the NG into federal peacetime service, even without gubernatorial approval.³⁹ The *Perpich* decision completed the codification of the relationship between the NG, the states, and the federal government. By institutionalizing the primacy of federal authority, the Supreme Court changed the traditional view of the NG as a state force called into federal service, to a view of the Guard as a federal force under the day-to-day control of the states. Despite changes in the relationship between the ANG and the Army that should have increased integration, historic cultural differences and organizational changes have served to undermine the relationship between the two Army components.

³⁸ William M. Donnelly, "The Root Reforms and the National Guard," US Army Center of Military History, May 31, 2001, accessed December 28, 2015, www.history.army.mil/documents/1901/Root-NG.htm.

³⁹ Joshua E. Kastenberg, *Shaping US Military Law: Governing a Constitutional Military*, (Surrey, England: Ashgate, 2014), 204-5, accessed December 28, 2015, <http://site.ebrary.com/lumen.cgscarl.com/lib/carl/reader.action?docID=10872467&ppg=156>.

Since the inception of the RA, RA leaders have held a low opinion of militia forces. During World War I, members of the state militia were drafted into federal service in the Army of the United States in support of the American Expeditionary Force.⁴⁰ RA leaders distributed these draftees across units generally led by RA Officers. Despite efforts made in the pre-war years to integrate the RA and militia, the cultural divide could not be overcome. In the years following the war the divide only grew. In 1920, Congress directed the appointment of a NG major general as the Chief of the Militia Bureau. The Chief of the Militia Bureau served as the principle advisor to the Secretary of War and the Chief of Staff of the Army on all matters related to the administration and oversight of the state militias. In 1933, along with the establishment of the NG of the United States, the Militia Bureau was renamed the NGB. After World War II, with the creation of the Air Force and Air National Guard, the NGB became a joint activity with the Chief of the NGB responsible for providing advice to the Secretary of Defense and the Secretaries and Chiefs of Staff of the Army and Air Force on all matters related to the NG. This began the process of convoluting responsibilities for the administration of NG Forces between the states, the DOD, the service departments, and the NGB. In 2012, responsibilities and authorities became even more challenging as the Chief of the NGB was elevated to a four-star general officer and made a member of the Joint Chiefs of Staff. This change made the Chief of the NGB an equal to the service chiefs that the bureau supports. DOD Directive (DODD) 5100.01 states that:

The Chief, NGB is a principal advisor to the Secretary of Defense, through the Chairman of the Joint Chiefs of Staff, on matters involving non-federalized National Guard forces, and other matters as determined by the Secretary of Defense. For NGB matters pertaining to the responsibilities of the Departments of the Army and Air Force in law or DOD policy, the Secretary of Defense normally exercises authority, direction, and control over the NGB through the Secretaries of the Army and the Air Force. The NGB is the focal point at the strategic level for National Guard matters that are not under the authority, direction, and control of the Secretaries of the Army or Air Force.

⁴⁰ John K. Mahon, *History of the Militia and the National Guard*, The Macmillan Wars of the United States (New York: Macmillan, 1983), 156.

Ultimately, the convoluted relationship between the Office of the Secretary of Defense, the service departments, and the NGB creates a situation where the NGB sometimes advocates and acts in a manner that is inconsistent with the services' interests and contrary to Service Department guidance. Significant friction is created between NGB and the Department of the Army, as the bureau acts contrary to the perceived interests of the service. This friction is increased by the fact that the ANG maintains all of the reserve component combat arms forces, with the USAR organized to primarily provide combat support and service support capabilities. This division makes integration of both the ANG and USAR critical to providing an operational reserve and strategic depth for sustained land conflict.

The Army Reserve

Like the transformation of the state militias into a federal reserve, the United States Army Reserve was borne from the need for a readily available force pool to support increasing expeditionary operations at the beginning of 20th century. The creation of the Army Reserve however, was emblematic of the culture of mistrust that existed between RA leaders and the militias. In 1915, during the lead-up to the United States' entry into World War I, the frictional relationship between the RA and the state militias prompted Secretary of War Lindley M. Garrison to request the expansion of the RA and the creation of a 400,000-man federal reserve. The 1916 National Defense Authorization Act approved the creation of a federal commissioned and enlisted reserve but, based on lobbying from states and the National Guard Association, chose to emphasize the role of the ANG as the Army's primary wartime reserve.⁴¹ The 1920

⁴¹ Richard W. Stewart, *American Military History: The United States Army and the Forging of a Nation, 1775-1917* (Washington, DC: Center of Military History, US Army, 2005), 381-82, accessed January 1, 2016, <http://www.history.army.mil/books/AMH-V1/ch16.htm#>.

National Defense Authorization Act further integrated the active and RCs, establishing the Army of the United States, consisting of the RA, the ANG while in the service of the United States, and the organized Reserves.⁴² For more than fifty years after the establishment of the Organized Reserve, it was an integral part of the federal force. During the period between World War I and World War II, nine Army corps were established in the continental United States, with six divisions each. Three divisions from each of the Corps were drawn from the Organized Reserve.⁴³ During World War II, the Organized Reserve deployed both individuals and units. In the 1940s and 1950s, The Organized Reserve was transformed into the Army Reserve and was focused primarily on providing combat support and service support units.⁴⁴ In addition, Congress created the Chief of the Army Reserve, to advise the Secretary and Chief of Staff of the Army on issues affecting Reserve readiness. Until the late 1980s, the Army Reserve was integrated at all echelons, providing for a single, expansible federal fighting force.

In 1988, Representative Bill Chappell, Chairman of the House Appropriations Defense Appropriation subcommittee, directed the Army to, “look into the practicality of having the Chief of the Army Reserve also function as the Reserve component commander and of establishing a single reporting chain by consolidating the administrative units similar to the other RCs.” Despite a US Army Forces Command study that recommended that no changes be made to the command

⁴² Marvin A. Kreidberg and Merton G. Henry, *History of Military Mobilization in the United States Army, 1775-1945*, Reprint ed. (Washington, DC: University Press of the Pacific, 2005), 378, accessed January 1, 2016, http://www.history.army.mil/html/books/104/104-10/CMH_Pub_104-10.pdf.

⁴³ Richard W. Stewart, *American Military History: The United States Army in a Global Era, 1917-2003*, (Washington, DC: Center of Military History, US Army:, 2005), 60, accessed January 10, 2016, <http://www.history.army.mil/books/AMH-V1/ch16.htm#g>.

⁴⁴ Mike Burbach, “History of the Army Reserve,” *The Officer* 74, no. 2 (March 1998): 11-13, accessed January 10, 2016, <http://search.proquest.com.lumen.cgsccarl.com/docview/214104691?pq-origsite=summon>.

and control of US Army Reserve forces, the 1990 Defense Appropriation directed the Army to, “increase the role of the Chief of the Army Reserve, consistent with the command, planning and management responsibilities of the Chief of Air Force Reserve and Chief of the NGB.” In 1992, the USARC was activated as a major subordinate command to FORSCOM, with the Chief of the Army Reserve executing command and control over all non-mobilized reserve forces.⁴⁵ This change was the final action necessary to institutionalize the divisions between the active and RCs, and like the establishment of the NGB, set into law the separation of the components, and potentially constrained future RA/RCs integration efforts.

Operational Capabilities and Strategic Depth: The Challenges of Total Force Generation

While “Total Force Policy” has only been explicitly articulated in DOD policy since 1970, it has been a tacit aspect of Army plans and policy since the establishment of the Army of the United States in the 1920 National Defense Authorization Act. Over the last century however, cultural, political, and institutional barriers have emerged that have made the establishment of policy necessary to unify the three components of the Army into a single effective fighting force. In 1973, Army Chief of Staff, General Creighton W. Abrams, Jr., set up a study group that envisioned a future complex, multipolar world. With the Army drawing down at the end of the Vietnam War, the study group asked “Could such a small Army fulfill all its obligations and still retain an adequate contingency force?”⁴⁶ This is the same challenge facing the force today, as sequestration significantly strains DOD resources while global commitments rise. To meet both contemporary and future challenges, the DOD has to develop solutions that better integrate the

⁴⁵ Federal Research Division Library of Congress, *Historical Attempts to Reorganize the Reserve Components* (Washington, DC: Government Printing Office, 2007), 17.

⁴⁶ Richard W. Stewart *CMH Pub*, 2nd ed., vol. 30-21, 30-22, *American Military History* (Washington, DC: Center of Military History, United States Army: 2009-2010), 375-376.

total force. The Army must overcome cultural and institutional divides to field and maintain a total force capable of responding to future contingencies in an increasingly complex world.

The need for operational capabilities and strategic depth is especially true for the Army Chemical Corps, with more than eighty percent of the current SRC 03 force structure residing in the RCs. Based on force structure decisions, the Army has resourced countering WMD as an economy of force mission, while simultaneously expanding and institutionalizing the Army's role in countering WMD as a component of the joint force and interagency efforts. This decision will place a significant burden on a limited number of RA units to support initial contingency requirements, and increase the requirement for reserve component forces to be readily available to support sustained land operations. This is the crux of the total force dilemma, establishing policy to ensure the availability of trained and ready forces to meet unknown future contingency requirements.

Since the beginning of the Global War on Terror, the United States Army has been forced to rely more heavily on the RCs to generate sufficient forces to meet global commitments. From 2001 to 2006, the RCs operational tempo increased nearly 500 percent.⁴⁷ At the same time, force structure tradeoffs have increased the interdependence of the active and RCs. Recognizing the increased reliance on the RCs, in 2008, Secretary of Defense Robert Gates approved DOD Directive (DODD) 1200.17, *Managing the Reserve Components as an Operational Force*.⁴⁸ Despite Secretary Gates' and his successor's efforts to update the total force policy, statutory restrictions and inconsistencies in DOD and Army policies have undermined RA/RCs integration. To develop a true Total Force Policy, the Army has to seek solutions that break down the

⁴⁷ Commission on the National Guard and Reserves, *Commission On the National Guard and Reserves: Transforming the National Guard and Reserves into a 21st-Century Operational Force* (Washington, DC: Government Printing Office, 2008), 1.

⁴⁸ Department of Defense Directive (DODD) 1200.17, *Managing the Reserve Components as an Operational Force* (Washington, DC: Government Printing Office, 2008), 6.

institutionalized barriers between the components and reestablish unity of command and unity of effort across the total force.

Changing the Army's Culture: Moving Toward a Single Force Policy

Inconsistencies in policy instituted over the last half century regarding the administration of the RA, ANG, and USAR, have made it necessary for DOD and Department of the Army leaders to revise or replace the existing Total Force Policy. The Abrams Doctrine, an evolution of Secretary Laird's Total Force Policy, intended not only to provide a more cost effective force but also to ensure that Army would never fight another war without the RCs, has heavily influenced the shape of the current force.⁴⁹ Over the last two decades, the Army institutionalized the interdependence of the RA and RCs through a reshuffling of reserve component missions following the 1993 Army Off-Site Agreement.⁵⁰ Despite the institutional barriers to RA/RCs integration, force structure changes resulting a myopic focus on contemporary theaters of operations and policies resulting from the Abrams Doctrine and the Off-Site Agreement have made the execution of assigned missions without both RA and RCs capabilities nearly impossible for the Chemical Corps. To ensure the readiness of the future force, the Army must adopt new policies that allow for the seamless integration of RA and RC forces. To maintain an effective Chemical force, the Army must provide a single force, organized, trained, and equipped for prompt and sustained combat incident to operations on land.

While the Army purports to maintain a "total force" policy, the reality is that the three components have become de facto services, operating as independent entities. Over the last decade, the Army has adopted several initiatives intended to increase the level of integration. These initiatives include the "One Army School System" and the integration of the RA and

⁴⁹ Gary Khalil and Carl Rehberg, "W(h)ither the Abrams Doctrine: Good or Bad Policy?," *The Officer*, December 2003, 21, accessed February 4, 2016, <http://search.proquest.com.lumen.cgscarl.com/docview/214106323/fulltext/B464DEB2ACD142A9PQ/1?accountid=28992>.

⁵⁰ L. Martin Kaplan, *Department of the Army Historical Summary Fiscal Year 1994* (Washington, DC: 2000), 71.

USAR Human Resources Command. While these initiatives are steps in the right direction, the Army must work to institute a “Single Force Policy” that integrates RA and RC forces at all echelons, across all of the capability development domains, both operationally and administratively. The challenges facing the Chemical Corps are a microcosm of the challenges the Army will face in the future and provides the Army with the opportunity to conduct a limited proof of concept for all policy initiatives as the Department of the Army works to maintain an operational reserve. These initiatives should focus on changing the way the Army organizes, mans, trains, and equips the force.

Back to the Future: Building Multi-Component Units

In the wake of the public conflict between RA and NG leaders, the 2015 National Defense Authorization Act directed the establishment of a commission to conduct a comprehensive study of the Army structure to assess the size and force structure of the active and RCs of the Army. Congress also directed the commission to make possible recommendations for force structure modification related to current and anticipated mission requirements at acceptable risk levels within current and future available resources. The commission recommended that the Army, “continue creating and sustaining multicomponent units,” however, with the exception of recommendations for a test program for multicomponent aviation units, the commission did not provide substantive recommendations for the establishment of multi-component units.⁵¹ Building on the commission’s recommendation, and using the Army Chemical Corps as a proof of concept, the Army should increase the development of multicomponent headquarters and assign forces

⁵¹ The National Commission on the Future of the Army, *Report to the President and the Congress of the United States* (Washington, DC: Government Printing Office, 2016), 67, accessed February 11, 2016, http://www.ncfa.ncr.gov/sites/default/files/NCFA_Full%20Final%20Report_0.pdf.

from across the components based on force allocation in support of Combatant Command requirements.

Multi-component units are not a new option for Army force development. Based on perceived readiness problems among ANG combat brigades, in 1992 Congress Passed the Army National Guard Combat Readiness Reform Act (ANGCRRA). The ANGCRRA led to the establishment of two multi-component Divisions in 1999. The multi-component divisions were RA division headquarters that exercised training and readiness oversight of ANG Brigade Combat Teams.⁵² In 2006, in an effort to streamline RCs training and mobilization systems, the Army inactivated the multi-component divisions and replaced them with divisions of the First Army. Despite the inactivation of the multi-component divisions, the Army has not given up on the multi-component concept. In 2015, the 101st Airborne Division became the first multi-component division with an integrated headquarters, with personnel from all three Army components permanently assigned to the divisions headquarters.⁵³ As the Army faces significant resource constraints, the development of integrated multi-component headquarters provides a potential solution to maintaining wartime readiness at reduced peacetime costs.

Since 2010, the Army reduced the RA Chemical Force by nearly a third. As one of the smallest operational branches in the Army, trade-offs have required the Army to reduce company,

⁵² Christopher Behan, "The Integrated Active and Reserve Division: Background, Legal Foundation, and the Role of Judge Advocates," *The Army Lawyer*, March 2003, 2, accessed February 4, 2016, <http://search.proquest.com/lumen.cgscarl.com/docview/227899763?pq-origsite=summon>.

⁵³ Terrance Rhodes, "101st Makes History, Creates Multicomponent Unit Division," *Fort Knox Gold Standard*, June 25, 2015, accessed February 9, 2016, <http://www.fkgoldstandard.com/content/101st-makes-history-creates-multicomponent-unit-division>. "HHBN, 101st Airborne Division," Force Management System Website (FMSWeb), accessed February 22, 2016. <https://fmsweb.army.mil>. To reduce the end-strength requirements for 2-star and above HQ, the Department of the Army sourced some personnel requirements for division HQ with RC personnel. RC personnel fill Fifteen percent of authorized positions in the division HHBN.

battalion, and brigade staffs to maintain reconnaissance platoons, decontamination platoons, and CBRNE Response Teams. Chemical brigade headquarters were already minimally resourced as force providers, negatively impacting their ability to deploy and execute mission command of task organized battalions. To enhance the capabilities of battalion and brigade headquarters, and provide flexibility for increased investment in CBRN/CBRNE companies, the Army should build all RA CBRN battalions and brigades as integrated multi-component headquarters. These headquarters should be staffed with sufficient RA and Active Guard and Reserve personnel to execute Training and Readiness Authority (TRA) or Training and Readiness Oversight (TRO) of assigned subordinates and execute the first ninety days of contingency operations. To enable sustained operations beyond the first ninety days of any contingency, the Army should fully resource wartime capabilities utilizing additional ready reserve personnel. The development of integrated multi-component headquarters would reduce the cost of maintaining robust headquarters by allowing formations to be minimally resourced during steady state operations, while fully resourcing organizations for contingency operations. Additionally, permanently assigning members of the selected reserve during drill periods will help overcome institutional barriers to RA/RCs integration. Lastly, due to the unique capabilities of the RA and RCs within the Chemical Force, the integrated headquarters would also enhance RA staff capabilities to execute mission command of RC forces by providing expertise in organizations unique to the RCs.

As figure illustrates, eighty percent of the Army Chemical Force resides in the RCs. All of the Army's Obscuration, Area Support, and Biological Detection Companies are in the RCs. To maximize the integration of corps and divisions with the Chemical Force for training and operations, the Army should establish habitual relationships between the three Chemical brigades and twenty-two Chemical battalions, and the three Army corps and nineteen Army divisions. Additionally, each battalion would be task organized based upon the capabilities required to

execute assigned prepared to deploy orders (PTDO), regionally aligned force require requirement, or other FORSCOM directed contingency force package requirements. While existing laws and policy, require that FORSCOM, USARC, and state adjutants general execute Administrative Control and TRA of assigned forces, the divisions and corps would execute TRO on behalf of the Combatant Commands to which each organization is allocated. This responsibility to execute TRO would increase interaction between maneuver formations and their echelon above brigade/division enablers and decrease integration requirements during deployment. Lastly, from a doctrinal perspective, the familiarity and trust developed between commanders based on integration at home station would facilitate the application of the Army mission command philosophy during contingency operations and mitigate the cultural barriers that have plagued RA / RCs integration during past wartime mobilizations.

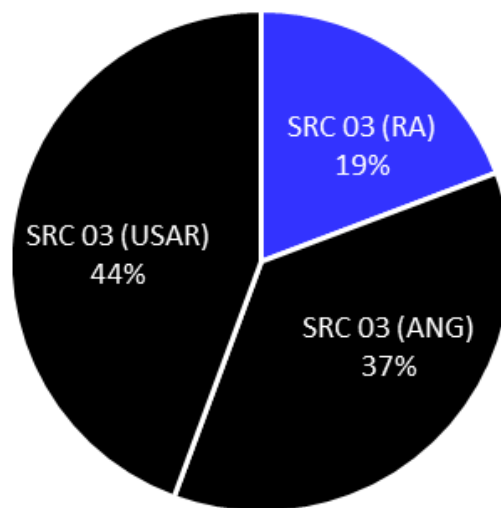


Figure 6. FY17 Chemical Force Distribution

Source: Data from United States Army Force Management Support Agency (USAFMSA), accessed December 2, 2015, <https://fmsweb.army.mil>.

Lastly, the 20th CBRNE Command should execute TRO of all CONUS-based CBRN Brigades, battalions and companies. Based on the increasing technical nature of CBRN missions, both FORSCOM and the USARC have consolidated CBRN units into functional organizations. For RA forces, the 48th Chemical Brigade executes TRA of all FORSCOM assigned functional CBRN Battalions and CBRNE/CBRNE Companies.⁵⁴ In USARC, the 415th Chemical Brigade and 206th Regional Support Group execute TRA of most US Army Reserve Chemical units. While FORSCOM and USARC organize all functional formations under functional headquarters, the distribution of ANG's chemical formations across multiple states prevents consolidation of CBRN units under functional CBRN headquarters. Only the Alabama ANG Chemical battalions have a command relationship with the ANG's only Chemical Brigade. To ensure units are trained and ready to support emerging contingency requirements, the Army should designate the 20th CBRNE Command as the Army senior mission commander for TRO of echelon above division CBRN units. The establishment of a FORSCOM CBRN senior mission command also creates efficiencies in the reserve mobilization process since FORSCOM assumes TRA of RCs units following mobilization.

To enable the 20th CBRNE Command to execute this mission, the Army should redesign the organization to be a standing multi-component headquarters. Based on the increased span of control from three to six subordinate brigades/groups, the 20th CBRNE Command should be elevated to a 2-star headquarters with a Deputy Commanding General (ANG) and a Deputy Commanding General (USAR). This change would provide a senior officer to advocate for operational CBRN capabilities in support of the Joint Force Commander, and concurrently provide senior leaders from the RCs to represent unique RCs interests.

⁵⁴ Army Regulation (AR) 525-29, *Army Force Generation* (Washington, DC: Government Printing Office, 2011), 21.

Among the DOTMLPF-P capability development domains, organizational solutions are optimal for achieving a single force policy because they integrate all components in a single structure and erode the institutional barriers that have developed between the components. However, policy makers in the DOD and lawmakers must address legal constraints to make organizational solutions practical. The constraints center on the availability of individuals and organizations to enable multi-component organizations to become effective teams.

Increasing Access to the RCs

Since the initiation of Operations Enduring Freedom and Iraqi Freedom, the Army has relied heavily on the RCs to meet force generations requirements beyond RA capabilities and capacity. From 2005-2009, the Army mobilized nearly 90,000 RCs personnel annually.⁵⁵ Based on the increased operational tempo of the RCs to meet emergent requirements, the 2005 Ronald W. Reagan National Defense Authorization Act (NDAA) expanded the Secretary of Defense's and Service Secretaries' authority to mobilize RCs personnel and units for up to 365 days and included additional end-strength authorizations in the annual NDAA.⁵⁶ Based on the 2005 NDAA, the Assistant Secretary of the Army for Manpower and Reserve Affairs expanded the existing Active Duty for Operational Support (ADOS) program. The expanded ADOS program authorized and resourced the voluntary mobilization of RCs personnel to support administration, training, and mobilization of RCs units, and the involuntary mobilization of RCs units and

⁵⁵ Gail Braymen, "Guard, Reserve Mobilizations as Critical as Ever, Experts Say," *Army*, February 8, 2016, accessed February 14, 2016, http://www.army.mil/article/162049/Guard__Reserve_mobilizations_as_critical_as_ever__experts_say/.

⁵⁶ Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005, Public Law 108, § 375, *US Statutes at Large* 118 (2004): 1811.

personnel to meet RA (ADOS-AD) and overseas contingency operational requirements (CO-ADOS). In 2012, the Secretary of Defense's authority was further expanded to allow for the mobilization of up to 60,000 RCs personnel annually for missions funded through the base appropriation.⁵⁷ This authority could also be expanded under Overseas Contingency Operations (OCO) appropriations. While the Commission on the National Guard and Reserves recommended eliminating ADOS funding and expanding authorizations for permanent active guard and reserve (AGR) and civilian personnel to support RCs missions, roles, and responsibilities, the existing system provided the opportunity to influence the size and the shape of the total force for emergent requirements.⁵⁸

If managed appropriately, the ADOS funding authorities provide a significant opportunity to increase the Army's ability to rapidly adapt the Army force structure to counter threats in a dynamic geopolitical environment. In multi-component organizations, the Army should fill personnel requirements using ADOS-AD. While these personnel would meet RA manning requirements, they would represent RCs interests at all levels from battalion to the Department of the Army. In Chemical organizations, these personnel should be assigned to operations and logistics functions to support enhance planning for training, mobilization, and employment of RC forces. Similarly, ADOS-RCs spaces, funded in the NDAA specifically to meet RCs administration and training requirements, should be increased in RCs battalions and brigades to enable chemical headquarters to integrate with, and plan support for, supported maneuver divisions. Lastly, ADOS-OC should be moved from OCO funding to the base budget

⁵⁷ Lawrence Kapp and Barbara Salazar Torreon, *Reserve Component Personnel Issues: Questions and Answers* (Washington, DC: Congressional Research Service, 2014), 21.

⁵⁸ Commission on the National Guard and Reserves, *Transforming the National Guard and Reserves into a 21st-Century Operational Force* (Washington, DC: Government Printing Office, 2008), 25, accessed February 16, 2016, http://www.loc.gov/rr/frd/pdf-files/CNGR_final-report.pdf.

and captured in the Army Program Objective Memorandum to support force generation requirements in support of combatant command Theater Campaign Plans and emergent requirements. These spaces should be reallocated on an annual basis through the GFM process to resource organizations with PTDO requirements of less than ninety days. The reallocation of ADOS-OC spaces as a component of the GFM process would increase access to RCs organizations and provide additional personnel to support training, operational planning, and pre-mobilization/pre-deployment activities for units sourced in support of operational war plans. Combined with increased access to RC forces for unit level training and operational deployment, increasing the use of ADOS to create multi-component organizations and set the conditions for increased RA and RCs collaboration would serve to further erode the barriers between the components.

Operationalizing the RCs

In 2008, Secretary of Defense Gates issued guidance for the services to “manage their respective RCs as an operational force such that the RCs provide operational capabilities while maintaining strategic depth to meet US military requirements across the full spectrum of conflict.” Based on the Secretary’s guidance and the Service’s increased reliance on the RCs, Secretary of the Army John McHugh issued Army Directive 2012-08, *Army Total Force Policy*, to provide guidance for the continued employment of the RCs as an operational force. Secretary McHugh further directed that, “As appropriate, the Army will integrate RA and RC forces and capabilities at the tactical level. This will include some predeployment collective training of tactical-level organization. Including those organizations that will routinely deploy as

multicomponent forces.” To accomplish this, the Secretary ordered the use of 12304b funding to increase access to the RCs.⁵⁹

Under 10 USC 12304b, the Secretary of the Army may mobilize US Army Reserve and ANG units for preplanned missions accounted for in the defense budget in support of the Combatant Commands. The authority to mobilize up to 60,000 members of the Select Reserve, without a Presidential partial mobilization greatly enhanced the Secretary of Defense’s and Service Secretaries’ ability to respond to steady state force generation requirements.⁶⁰ When used to project requirements as a component of the GFM process, 12304b funding provides access to RCs capabilities for a wide variety of missions.

Access to the RCs is especially important today, as the force faces RA endstrength reductions while continuing to support overseas contingency operations, remain globally engaged, and respond to emerging crisis. Through the GFM process, the Army has the ability to use 12304b funding authorities to support regionally aligned force missions, joint exercises, and Combat Training Center rotations. Critical capabilities, such as biological detection, obscuration, and heavy decontamination organizations are found exclusively in the RCs. As these capabilities are sourced against Combatant Command requirements, 12304b funding gives Army Commanders access to these organizations so that they can be integrated into collective training events across all echelons to enable the Army to train and fight as a single force.

No Silver Bullet: A Comprehensive Approach to a Better Force

Over the last 100 years, the RA, ANG, and USAR have evolved as institutions. In that time, bureaucratic and cultural barriers have emerged to erode the Army’s ability to operate as a

⁵⁹ John McHugh, Army Directive 2012-08, *Army Total Force Policy*, 2012.

⁶⁰ 10 USC 12304b

single, effective fighting force. Today in an era of fiscal constraint and an uncertain security environment the Army can ill-afford to have a fragmented force. The challenges facing the Chemical Corps are emblematic of those facing the Army. Sharp reductions in the RA Chemical Force over the last decade, a lack of focus on CBRN missions, and the potential for increased threats from WMD armed adversaries have put at risk the Army's ability to provide the right capabilities to the warfighter at the time and place where they are most critical. To counter the divide between the RA and RCs, the Army must adopt a Single Force Policy that employs multiple, interdependent solutions and changes how the Army training and employs the force.

The Single Force Policy must concurrently make changes to how Army organizes, employ new personnel management solutions that increase the RCs ability to integrate with RA formations in peacetime, and increase access to RCs capabilities for training. By building multicomponent organizations with integrated headquarters, expanding and increasing the flexibility of the ADOS program, and increasing RA and RCs training opportunities through the use of 12304b funding, the Army can ensure it provides a trained and ready force to meet future mission requirements. The Army can overcome a century of policies that undermine its effectiveness.

During the buildup of forces in preparation for the 1991 Persian Gulf War, former V Corps Commander, Lieutenant General John W. Woodmansee, Jr., referred to ANG round-out brigades as "relatively untrained troops" as a justification for the Army's decision to deploy RA brigades to Saudi Arabia, contrary to existing force generation plans.⁶¹ Whether his assessment was accurate or reflected an RA bias, it clearly illustrated a divide between the RA and RCs that impacted the Army's ability to fight and win as a total force. The wars in Iraq and Afghanistan

⁶¹ Frank N. Schubert and Theresa L. Kraus, eds., *The Whirlwind War (Paperback): The United States Army in Operations Desert Shield and Desert Storm (Center of Military History Publication)* (Washington, DC: Department of the Army, 1995), 71, accessed January 1, 2016. <http://www.history.army.mil/books/www/WWINDEX.HTM>.

have forced RA/RCs integration to meet force generation requirements and have also reshaped the force to make institutionalized integration necessary. This necessity is especially true for the Army Chemical Corps which has seen its RA resources strained while RCs capacity has increased. To succeed the Chemical Corps must leverage the full suite of tools available to provide a trained and ready total force capable of rapidly responding to contingencies both at home and abroad.

Conclusion

The proliferation of WMD is making the world an increasingly dangerous place for US forces operating around the globe. Since the NPT entered into force in 1970, five nations have joined the original five nuclear weapons states as nuclear powers, and several others have initiated illicit nuclear development programs. In recent years, advances in the life sciences have increased the potential for biological weapons development. In a 2009 statement, Natalya Kaverina, an analyst for the Russian Academy of Sciences' Institute of Global Economy and International Relations, stated that more than thirty nations possess the capacity to rapidly develop biological weapons capabilities.⁶² And finally, chemical weapons remain an option for nearly any industrialized state. Since 2000, the United States has conducted three operations to eliminate the chemical stockpiles of adversary states: Iraq, Lybia, and Syria. Like other asymmetric capabilities, nations seek WMD as a hedge against American military superiority. As technological advances have increased the threat of WMD proliferation, the mission of the Army Chemical Corps has expanded from CBRN passive defense to countering the full range of WMD threats and hazards. The increasing threat and expanding missions make it necessary for the Army to maintain a chemical force capable of rapidly responding to joint force requirements.

At the same time that the threats and missions are growing, fiscal constraints are driving reductions in the size of the Army, forcing the service to make trade-offs to maximize resources. These trade-offs have included significant changes to the size, shape, and distribution of the chemical force. Since 2003, while the RA has grown to meet the need for

⁶² Cheryl Vos, "Over 30 Nations Can Deploy Biological Weapons," *Biosecurity* (blog), *Federation of American Scientists*, March 4, 2009, accessed March 24, 2016, <https://fas.org/blogs/security/2009/03/over-30-nations-can-deploy-biological-weapons/>.

sustained operations in Iraq and Afghanistan, the RA operational chemical force has gotten smaller. In contrast to the rest of the Army and the RA chemical force, the RCs chemical force has grown by more than twenty percent, resulting in an aggregate growth of the Chemical force across all components. This growth has provided the opportunity for improving the capabilities of the Chemical force, but has also faced challenges as the institutional barriers. Changes in the structure of the ANG and USAR designed to ensure RCs readiness have actually served to decrease integration, as each of the components have operated as de facto services.

To overcome the institutional barriers to RA/RCs integration, the Army must move beyond the existing Total Force Policy to a new policy approach that leverages multiple tools to increase the integration of all components. A new Single Force Policy would develop processes that integrate authorities granted to the Secretary of Defense and Service Secretaries in the past decade to maintain an operational reserve force. A Single Force Policy would include transforming the 20th CBRNE Command into an integrated multicomponent command and designating it the Senior Mission Commander for all CBRN units. Additionally, the policy would use training and readiness oversight authorities to task organize chemical battalions based on mission assignment. Lastly, it would institutionalize the use of ADOS and 12304b funding as a component of the GFM process, to increase full-time manning of reserve chemical units based on assigned missions. These efforts would serve to optimize existing force structure to provide commanders with right capabilities to counter the full range of WMD threats and hazards.

Since its initial establishment as the Gas Warfare Service in 1917, the US Army Chemical Corps has existed in a nearly enduring state of change. Its missions have evolved from offensive CW employment and CW defense in the years between World Wars I and II to today's

missions focused on countering the full range of CBRN threats and hazards. Oftentimes the relevance of the Corps has been challenged, nearly resulting in its abolition in the mid-1970s, but ultimately the threat of CBRN use has made it necessary that the Army maintains CBRN defense capabilities. To provide the right mix of capabilities at the lowest possible cost, the Army has relied heavily on the RCs to supplement a small RA force. Ensuring the Chemical Corps' readiness to support the Joint Force requires that the Army replace the existing Total Force Policy with a new policy that increases RA/RCs integration and ensures the availability of CBRN capabilities when needed.

Bibliography

- Allison, Graham T. *Nuclear Terrorism: The Ultimate Preventable Catastrophe*. Owl Books Ed. New York: Henry Holt, 2005.
- Army Regulation (AR) 525-29, *Army Force Generation*, Washington, DC: Government Printing Office, 2008.
- Army Techniques Publication 3-11.23, *Multi-Service Tactics, Techniques, and Procedures for Weapons of Mass Destruction Elimination Operations*. Washington, DC: Government Printing Office, 2013.
- Army Techniques Publication. 3-11.41. *Multi-Service Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Consequence Management Operations*. Washington, DC: Government Printing Office, 2015.
- Carter, Ashton. "Better Buying Power: Guidance for Obtaining Greater Efficiency and Productivity in Defense Spending," September 14, 2010, Accessed January 3, 2016. <https://dap.dau.mil/policy/Documents/Policy/Memo%20for%20Acquisition%20Professionals.pdf>.
- Cirincione, Joseph, Jon B. Wolfsthal, and Miriam Rajkumar. *Deadly Arsenals: Nuclear, Biological, and Chemical Threats*. 2nd ed. Washington, DC: Carnegie Endowment for International Peace, 2005. Accessed March 24, 2016. <http://catdir.loc.gov/catdir/toc/ecip0512/2005012915.html>.
- Behan, Christopher. "The Integrated Active and Reserve Division: Background, Legal Foundation, and the Role of Judge Advocates." *The Army Lawyer*, March 2003. Accessed February 4, 2016. <http://search.proquest.com.lumen.cgsccarl.com/docview/227899763?pq-origsite=summon>.
- Braymen, Gail. "Guard, Reserve Mobilizations as Critical as Ever, Experts Say." *Army*. February 8, 2016. Accessed February 14, 2016. http://www.army.mil/article/162049/Guard__Reserve_mobilizations_as_critical_as_ever__experts_say/.
- Burbach, Mike. "History of the Army Reserve." *The Officer* 74, no. 2 (March 1998): 11-13. Accessed January 10, 2016. <http://search.proquest.com.lumen.cgsccarl.com/docview/214104691?pq-origsite=summon>.
- Burton, J.B., Burpo, F.J. Smoak, Elmore F., "CBRNE Task Forces," *The Army Chemical Review*, PB 3-15-1 (Summer 2015): 9-13, Accessed September 20, 2015. <http://chemical.epubxp.com/t/15891>.
- Commission on the National Guard and Reserves. *Commission On the National Guard and Reserves: Transforming the National Guard and Reserves into a 21st-Century Operational Force*. Washington, DC: Government Printing Office, 2008.
- Congress, Federal Research Division Library of. *Historical Attempts to Reorganize the Reserve Components*, Washington, DC: Government Printing Office, 2007. Accessed January 10, 2016. http://www.loc.gov/rr/frd/pdf-files/CNGR_Reorganization-Reserve-Components.pdf.

- Department of Defense Directive 1200.17, *Managing the Reserve Components as an Operational Force*. Washington, DC: Government Printing Office, 2008.
- Donnelly, William M. "The Root Reforms and the National Guard," US Army Center of Military History, May 31, 2001. Accessed December 28, 2015, www.history.army.mil/documents/1901/Root-NG.htm.
- Field Manual 3-11, *Multi-Service Doctrine for Chemical, Biological, Radiological, and Nuclear Operations*. Washington, DC: Government Printing Office, 2011.
- Frantz, Douglas, and Catherine Collins. *The Nuclear Jihadist: The True Story of the Man Who Sold the World's Most Dangerous Secrets-- and How We Could Have Stopped Him*. New York: Twelve, 2007.
- Graham, Bob, and Jim Talent. *World at Risk: The Report of the Commission On the Prevention of WMD Proliferation and Terrorism*. New York: Vintage Books, 2008. Accessed December 3, 2015. <http://catdir.loc.gov/catdir/enhancements/fy0906/2009373884-d.html>.
- Harwell, James. "The CBRN FDU: Building the Future Force Today." *The Army Chemical Review*, PB 3-15-1 (Summer 2015): 9-13. Accessed September 20, 2015. <http://chemical.epubxp.com/t/15891>.
- Harwell, James P., "Transforming the Force: Organizing Army CBRNE Forces to Face the Evolving CBRNE Threat." M.P.M. Capstone, Georgetown University, 2009.
- Hersman, Rebecca K. C. *Eliminating Adversary Weapons of Mass Destruction: What's at Stake?* Washington, DC: National Defense University, 2004. Accessed September 20, 2015. <http://wmdcenter.dodlive.mil/files/2012/02/Eliminating-Adversarial-WMD.pdf>
- Hersman, Rebecca K.C, and Todd M. Koca. "Eliminating Adversary Wmd: Lessons for Future Conflicts." *Strategic Forum* no. 211 (October 2004): 1. Accessed October 26, 2015. <http://wmdcenter.dodlive.mil/files/2012/02/Eliminating-Adversary-WMD-LforFC.pdf>.
- Hurt, Justin P. "Designing the Army's future active duty weapons of mass destruction response: is the defense chemical, biological, radiological, nuclear and high-yield explosives response force (DCRF) the right force at the right time?" Master's Thesis, US Army Command and General Staff College, 2013. Accessed September 24, 2015. <http://cgsc.contentdm.oclc.org/utis/getdownloaditem/collection/p4013coll2/id/3026/file/ame/3077.pdf/mapsto/pdf/type/singleitem>
- Iraq Survey Group. *The Iraq Survey Group Comprehensive Report of the Special Advisor to the DCI On Iraq's WMD with Addendums Volume 2*. Washington, DC: Government Printing Officer, 2004. Accessed September 12, 2015. http://www.foia.cia.gov/sites/default/files/document_conversions/89801/DOC_0001156442.pdf
- Iraq Survey Group. *The Iraq Survey Group Comprehensive Report of the Special Advisor to the DCI On Iraq's WMD with Addendums Volume 3*. Washington, DC: Government Printing Officer, 2004. Accessed September 12, 2015. http://www.foia.cia.gov/sites/default/files/document_conversions/89801/DOC_0001156478.pdf.
- Kaplan, L. Martin. *Department of the Army Historical Summary Fiscal Year 1994*. Washington, DC: 2000.
- Kapp, Lawrence, and Barbara Salazar Torreon. *Reserve Component Personnel Issues: Questions and Answers*. Washington, DC: Congressional Research Service, 2014.

- Kastenberg, Joshua E. *Shaping US Military Law: Governing a Constitutional Military*. Surrey, England: Ashgate, 2014. Accessed December 28, 2015.
<http://site.ebrary.com/lumen.cgscarl.com/lib/carl/reader.action?docID=10872467&ppg=156>.
- Khalil, Gary, and Carl Rehberg. "W(h)ither the Abrams Doctrine: Good or Bad Policy?" *The Officer*, December 2003. Accessed February 4, 2016.
<http://search.proquest.com/lumen.cgscarl.com/docview/214106323/fulltext/B464DEB2ACD142A9PQ/1?accountid=28992>.
- Koblentz, Gregory D. *Living Weapons: Biological Warfare and International Security*. Cornell Studies in Security Affairs. Ithaca: Cornell University Press, 2009.
- Mauroni, Albert J. *America's Struggle with Chemical-Biological Warfare*. Westport, CT.: Praeger, 2000.
- Kreidberg, Marvin A., and Merton G. Henry. *History of Military Mobilization in the United States Army, 1775-1945*. Reprint ed. Washington, DC: University Press of the Pacific, 2005. Accessed January 1, 2016. http://www.history.army.mil/html/books/104/104-10/CMH_Pub_104-10.pdf.
- Lewis, Mark R. "US Army: Office of Business." US Army. November 24, 2015. Accessed January 3, 2016. <http://www.army.mil/obt>.
- Mahon, John K. *History of the Militia and the National Guard*. The Macmillan Wars of the United States. New York: Macmillan, 1983.
- Mauroni, Al. "The US Army Chemical Corps: Past, Present, and Future." The Army Historical Foundation. 2015. Accessed December 1, 2015. <https://armyhistory.org/the-u-s-army-chemical-corps-past-present-and-future/>.
- McElroy, Damien. "Isis Storms Saddam-Era Chemical Weapons Complex in Iraq." *Telegraph*. June 19, 2014. Accessed October 28, 2015.
<http://www.telegraph.co.uk/news/worldnews/middleeast/iraq/10913275/Isis-storms-Saddam-era-chemical-weapons-complex-in-Iraq.html>.
- McHale, Paul. *Critical Mismatch: The Dangerous Gap Between Rhetoric and Readiness In DOD's Civil Support Missions*. Washington, DC: The Heritage Foundation, 2012. Accessed September 24, 2015.
<http://www.heritage.org/research/reports/2012/08/critical-mismatch-the-dangerous-gap-between-rhetoric-and-readiness-in-dod-civil-support-missions>.
- McHugh, John. Army Directive 2012-08, *Army Total Force Policy*. 2012.
- The National Commission on the Future of the Army. *Report to the President and the Congress of the United States*. Washington, DC: Government Printing Office, 2016. Accessed February 11, 2016.
http://www.ncfa.ncr.gov/sites/default/files/NCFA_Full%20Final%20Report_0.pdf.
- National Guard. "National Guard Birth Date." Accessed January 2, 2016.
<http://www.nationalguard.mil/AbouttheGuard/Howwebegan.aspx>.
- National Strategy to Combat WMD*. Washington, DC: Government Printing Office, 2002.
- National Military Strategy to Combat WMD*. Washington, DC: Government Printing Office, 2006.

- PBS Frontline. "Hunting Bin Laden: Osama bin Laden v. the US: Edicts and Statements." September, 2001. Accessed December 1, 2015. <http://www.pbs.org/wgbh/pages/frontline/shows/binladen/who/>.
- Quadrennial Defense Review*. Washington, DC: Government Printing Office, 2001. Accessed November 1, 2015, <http://archive.defense.gov/pubs/pdfs/qdr2001.pdf>.
- Schubert, Frank N., and Theresa L. Kraus, eds. *The Whirlwind War (Paperback): the United States Army in Operations Desert Shield and Desert Storm (Center of Military History Publication)*. Washington, DC: Department of the Army, 1995. Accessed January 1, 2016. <http://www.history.army.mil/books/www/WWINDEX.HTM>.
- Stewart, Richard W. *American Military History: The United States Army and the Forging of a Nation, 1775-1917*. Washington, DC: Center of Military History, US Army., 2005. Accessed January 1, 2016. <http://www.history.army.mil/books/AMH-V1/ch16.htm#g>.
- Stewart, Richard W. *American Military History: The United States in a Global Era, 1917-2003*. Washington, DC: Center of Military History, US Army., 2005. Accessed January 10, 2016. <http://history.army.mil/books/AMH-V2/AMH%20V2/index.htm>
- Tucker, Jonathan. *Toxic Terror: Assessing Terrorist Use of Chemical and Biological Weapons*, BCSIA Studies in International Security. Cambridge, MA.: MIT Press, 2000.
- Tucker, Jonathan. *War of Nerves: Chemical Warfare from World War I to Al-Qaeda*. New York: Anchor, 2007.
- United Nations Office of Disarmament Affairs. "Chemical Weapons." Accessed October 26, 2015. <http://www.un.org/disarmament/WMD/Chemical/>.
- US Congress. *Congressional Record*. 101st Cong., 2d sess., 1990. Vol. 136, pt. 67.
- Van Camp, Brett. "Chemical, Biological, Radiological, & Nuclear Response Enterprise: A Way Ahead." Research Project, United States Army War College, 2012. Accessed September 1, 2015. <http://handle.dtic.mil/100.2/ADA562130&rct=j&frm=1&q=&esrc=s&sa=U&ved=0CBQQFjAAahUKEwj1oq2-p5DIAhXIEpIKHX7wBbU&usg=AFQjCNFwcevyXIH-ir6Xv3IfXOzqbfiCqg>.
- Vos, Cheryl. "Over 30 Nations Can Deploy Biological Weapons." Biosecurity (blog). Federation of American Scientists, March 4, 2009. Accessed March 24, 2016. <https://fas.org/blogs/security/2009/03/over-30-nations-can-deploy-biological-weapons/>.
- Walk, Robert, "A Modest Proposal: Shatter the Retorts, Defuse the Bomb, and Stabilize the Atom," *The Army Chemical Review*, PB 3-15-1 (Summer 2015): 9-13. Accessed September 20, 2015. <http://www.wood.army.mil/chmdsd/Jan-June06toc.htm>.